



# JOURNAL

OF THE

## Royal United Service Institution

PUBLISHED UNDER THE AUTHORITY OF THE COUNCIL.

Editor - Captain H. GARBETT, R.N. (Retired).

Vol. XLIII.—15th APRIL, 1899.—No. 254.

|   | PAGE |
|---|------|
| No. I.—NEW FRENCH FIRST-CLASS PROTECTED CRUISER<br>"D'ENTRECASTEAUX," 8,114 TONS, 13,500 I.H.P.   |      |
| „ II.—GOLD MEDAL PRIZE ESSAY. "THE STRENGTH, COM-<br>POSITION, ORGANISATION, CONDITIONS OF SERVICE,<br>AND MODE OF TRAINING OF A MILITARY FORCE<br>FOR HOME DEFENCE." By Captain W. Baker Brown, R.E.,<br>Chief Instructor Submarine Mining, School of Military<br>Engineering, Chatham | 361  |
| „ III.—THE LESSONS OF THE SPANISH-AMERICAN WAR. Lecture<br>by Vice-Admiral P. H. Colomb   | 420  |
| „ IV.—BRITISH CAVALRY. By a Cavalry Officer   | 452  |
| „ V.—Naval Notes  | 458  |
| „ VI.—Military Notes  | 472  |
| „ VII.—Naval and Military Calendar for March  | 484  |
| „ VIII.—Contents of Foreign Journals for March  | 484  |

LONDON:

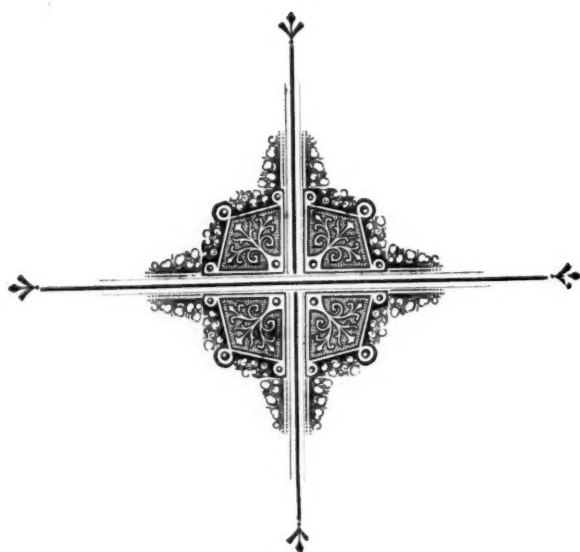
J. J. KELIHER & CO., 22, CHARING CROSS, S.W.,  
AND 33, KING WILLIAM STREET, E.C.

HODGES, FIGGIS & CO., 104, GRAFTON STREET, DUBLIN.  
JOHN MENZIES & CO., EDINBURGH.

*Entered at Stationers' Hall.*

Price Two Shillings.

*[All rights reserved.]*





**ROBT. MOLE & SONS,**



**Sword Cutlers to Her Majesty's War & India Offices,**

**11, Great Chapel Street, Westminster, London, S.W.**

Works : Granville Street, Birmingham.

*Telegraphic Address—*

*"RUSSATUS, LONDON."*

## **CONTENTS FOR APRIL, 1899.**

|  | PAGE |
|--|------|
| 1. NEW FRENCH FIRST-CLASS PROTECTED CRUISER "D'ENTRECASTEAUX,"<br>8,114 tons, 13,500-I.H.P.  |      |
| 2. GOLD MEDAL PRIZE ESSAY. "THE STRENGTH, COMPOSITION, ORGANISATION,<br>CONDITIONS OF SERVICE, AND MODE OF TRAINING OF A<br>MILITARY FORCE FOR HOME DEFENCE," BY CAPTAIN W. BAKER<br>BROWN, R.E., CHIEF INSTRUCTOR SUBMARINE MINING, SCHOOL<br>OF MILITARY ENGINEERING, CHATHAM ... .. | 361  |
| 3. THE LESSONS OF THE SPANISH-AMERICAN WAR. LECTURE BY VICE-<br>ADMIRAL P. H. COLOMB ... ..  | 420  |
| 4. BRITISH CAVALRY. BY A CAVALRY OFFICER ... ..  | 452  |
| 5. NAVAL NOTES ... ..  | 458  |
| 6. MILITARY NOTES ... ..   | 472  |
| 7. NAVAL AND MILITARY CALENDAR FOR MARCH ... ..  | 484  |
| 8. CONTENTS OF FOREIGN JOURNALS FOR MARCH ... ..   | 484  |

By Appointment



to Her Majesty.

**HAWKES & COMPY,**


**14, PICCADILLY, W.**

**Tailors & Military Outfitters, Cap & Accoutrement Manufacturers.**

**ESTABLISHED OVER A CENTURY.**


**BAYLISS JONES & BAYLISS**

**CONTINUOUS BAR FENCING WITH PATENT "CHAMPION" STEEL THRUST PLATES.**



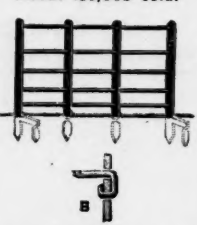
Digging of Holes avoided.

**WROUGHT IRON TREE GUARDS.**




**THE 'VICTORIA' RIVETLESS HURDLE.**

About 150,000 sold.




Steel Horizontals.  
Lists Free.

**UNCLIMBABLE RAILINGS AND HURDLES.**



Various Designs.

**ORNAMENTAL ENTRANCE GATES.**



**ALSO MAKERS OF  
POULTRY, LAWN TENNIS,  
CRICKET, AND DOG KENNEL  
FENCES, &c.**

ILLUSTRATED CATALOGUE OF ALL KINDS OF HURDLES, FENCING, GATES, &c. FREE.

**VICTORIA WORKS, WOLVERHAMPTON.**

LONDON OFFICES AND SHOW ROOMS—139 & 141, CANNON STREET, E.C.

## ROYAL UNITED SERVICE INSTITUTION WHITEHALL, S.W.

Contains the best professional Library in the United Kingdom; an excellent collection of Maps and Charts; Reading and Smoking Rooms provided with the leading papers, periodicals, and writing materials; a Museum of Naval and Military relics and trophies, and a Theatre in which lectures upon professional subjects, followed by discussions, are frequently given.

### TERMS OF MEMBERSHIP.

Annual Members, £1 0 0 on entrance, £1 0 0 annually.  
Life Member - - - - - £15 0 0

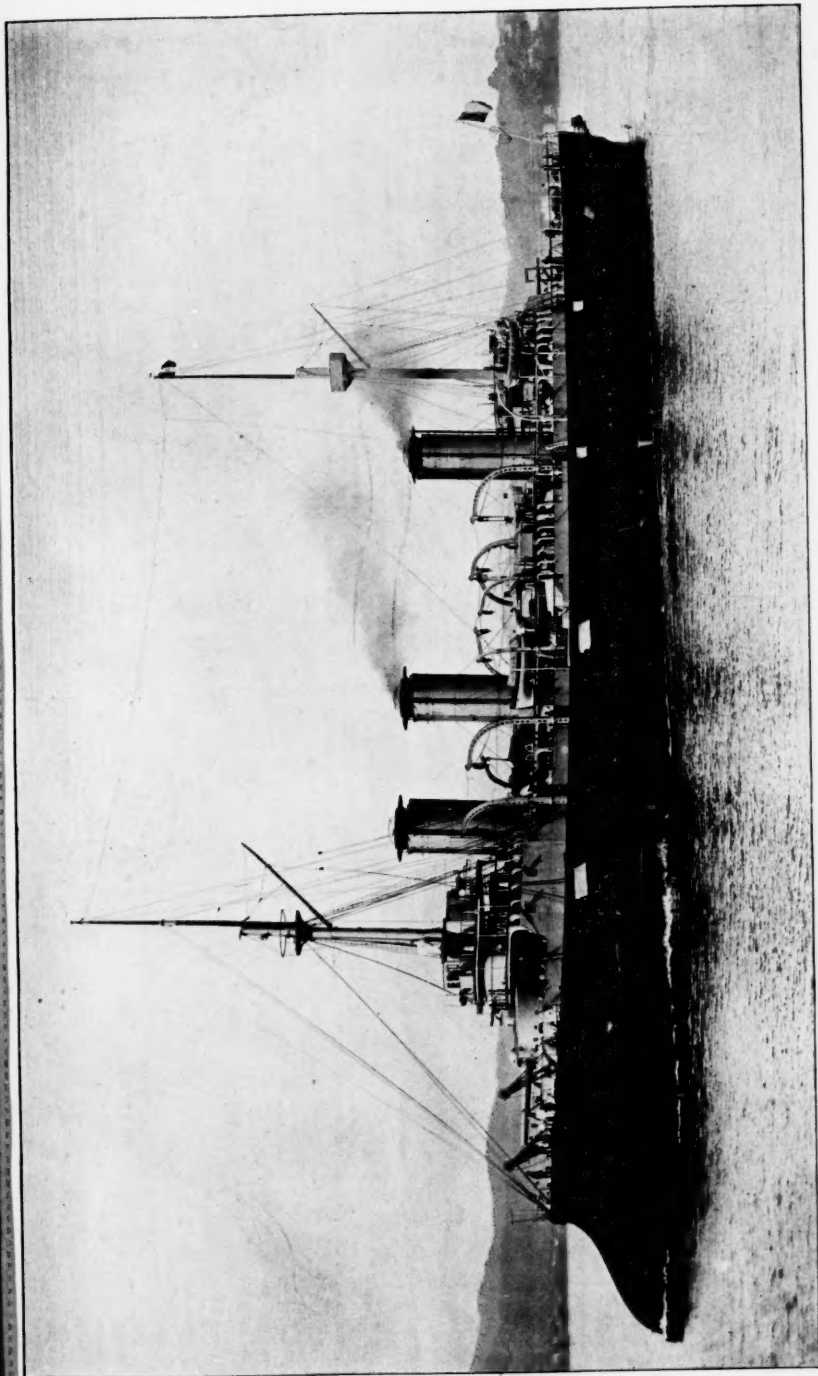
The valuable Journal of the Institution, published monthly, and sent to all members post free, contains the lectures given in the Theatre, and papers on professional subjects, notices of books, etc.

Officers whose names appear in the Official Navy and Army Lists become members on payment of the above fees; and applications for membership, giving rank, qualification, and address, should be made to the Secretary.







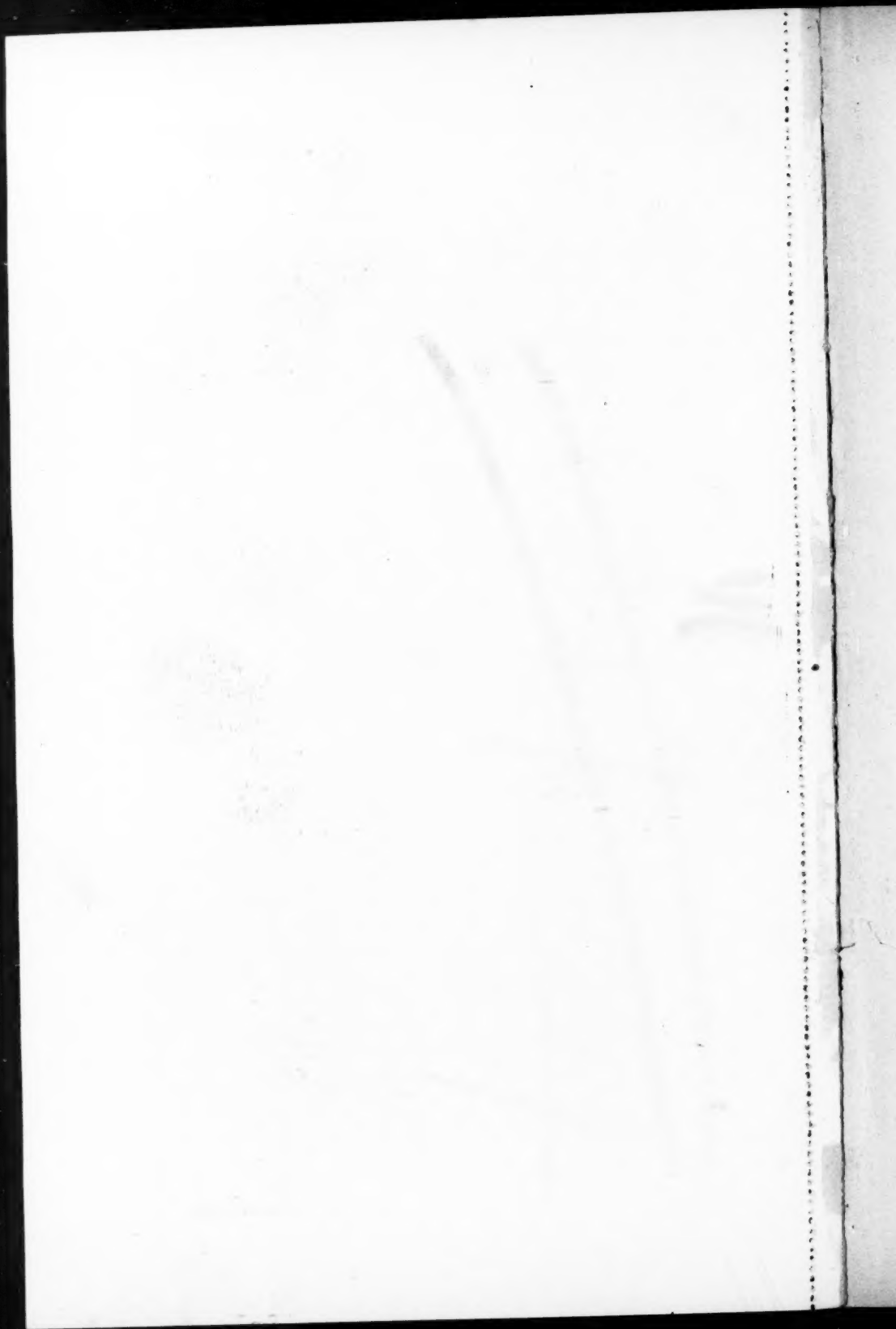


The New French First-Class Protected Cruiser "D'ENTRECASTEAUX."

Displacement, 8,114 tons; 13,500 I.H.P.; speed, 19 knots.  
 The two heavy guns are in turrets, one forward and one aft, protected by 10-inch hard steel armour; the 5.5-inch Q.F. guns are protected by shields of 2.8-inch hard steel. The armoured deck is 1 inches in thickness, tapering to 2 inches.  
 The ship is to be the new French flag-ship in China.

Photograph by M. Bar, of Toulon.

J. J. K. & Co., London.



# THE JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION.

---

VOL. XLIII.

APRIL, 1899.

No. 254.

---

*[Authors alone are responsible for the contents of their respective Papers.]*

## GOLD MEDAL PRIZE ESSAY.

*Subject:*

“THE STRENGTH, COMPOSITION, ORGANISATION,  
CONDITIONS OF SERVICE, AND MODE OF TRAINING OF A  
MILITARY FORCE FOR HOME DEFENCE.”

*By Captain W. BAKER BROWN, R.E., Chief Instructor Submarine  
Mining, School of Military Engineering, Chatham.*

---

*“Preparing is Preventing.”*

---

## CHAPTER I.

### INTRODUCTORY.

THE Home Defence of the British Islands is a question of the greatest interest to all of us; but this very feeling, natural as it is, is not without its dangers, as there is always the risk that the nearness of the interests involved may cause us to view the question from a parochial, rather than from an Imperial, standpoint.

An impartial consideration of the problem shows at once that, in a widely scattered Empire such as ours, the question of the defence of any portion must be considered from the broadest possible basis. The conditions of defence vary much at different parts of the globe. Details such as the proximity or otherwise of possible hostile forces, the relative naval strength within steaming distance of the place to be defended, and the relative importance of the port or country to the Empire as a whole, have all to be considered, and thus it may well be that defences based on purely local considerations would in some cases be too weak, or more often would be unnecessarily strong, wasteful in men and material, and thus harmful to the Empire as a whole.

Such considerations apply with redoubled strength to the defence of these islands, as no doubt any serious breach of their inviolability would have a shattering effect on the whole of the vast Empire of which they

are the centre. The people, too, who in the last resort have to decide broad questions of policy affecting the whole Empire, are the voters of Great Britain and Ireland, that is, people who have a direct personal interest in the efficiency of the Home Defences. This body of voters is always inclined to prefer defence by a powerful Army stationed always at home, which is a form of defence they can see, rather than defence by a Navy, which is not always present, and which thus appears to escape from their control, oblivious of the facts that a powerful Navy is essential for the maintenance of our Imperial existence, and that the provision of such a Navy would considerably modify the amount of military force necessary for Home Defence.

The existence of the Volunteers is a case in point. Raised to meet an emergency which has quite passed away, and organised only in small units, incapable for the most part of meeting any trained enemy in the field, they represent the embodiment of this popular sentiment.

The untrustworthiness of this feeling in controlling our defensive arrangements has been very marked in the condition of the portion of our permanent Army which is stationed at home. It is now common knowledge that, prior to 1886, no organisation existed in this country either for Home Defence or for a foreign expedition; and it was not till this had been brought home to the general public that any serious steps could be taken to improve matters and to put the organisation of the home army on some definite footing.

Our whole defensive and offensive arrangements are not, as they should be, the outcome of a well-matured and well-considered scheme, but are rather an irregular growth, sometimes satisfactory, often the reverse, according to the state of popular feeling, and the efforts made from time to time to improve one detail or another by some soldier, author, or politician, who may happen to have the ear of the general public. It follows from this that in considering the question of Home Defence we must not take for granted that, because a particular force or branch of our forces exists at present, it is therefore necessarily a useful part of our scheme, but we should first try and arrive at certain definite principles of defence and then build on those principles a superstructure of details, properly proportioned to our requirements.

On the other hand, no scheme would be practical which did not recognise the conditions which actually obtain at present. Such details as the existence, side by side, of Permanent Forces, Militia, and Volunteers cannot be disregarded. In short, we cannot build our edifice entirely of new materials but must be content to make the best possible use of those already existing. Those portions of our present arrangements which are in accord with our general principles would be retained, while the rest would be reconstructed.

I propose, therefore, to commence by stating shortly what I conceive to be the principles on which our Imperial Defence should rest. Most of them depend on naval action, or probable naval action, during war, and I have necessarily had to refer to the writings of various naval authorities. I have thus in this part brought forward little that is new,

but I have endeavoured to avoid an error into which military writers on defence questions often fall—I mean the error of considering the fleet as non-existent during the early stages of a war.

This could only be the case if our naval authorities were found absolutely unready on the outbreak of hostilities, and if our statesmen were so deficient in foresight that we were likely to be caught napping. Mr. Goschen, in introducing the Naval Estimates for 1898-99, laid some stress on the fallacy of supposing we were simply building ships haphazard. In any emergency our fleet must be the principal factor in the situation, and arguments based on the absence of all system in our naval arrangements can only be misleading. At the same time, we cannot entirely eliminate accident, or expect all the luck to be on our side; or, to put the point another way, we must not expect our admirals to be always doing the right thing in the right place, but we may at least be certain that they will be trying to do so.

The total elimination of our fleet could only be the result of a long and arduous struggle, involving a strain on our resources in men, money, and material, which is at present hardly conceivable. And before the end of such a struggle the Empire would have ceased to exist.

Having laid down the foundation on which Imperial Defence should rest, I propose next to discuss the portion of our forces required for Home Defence, and to put forward certain conditions as to numbers, conditions of training and organisation which seem to me essential; and, finally, to consider how far our existing resources would be sufficient, or could be made sufficient, to meet these requirements.

I hope thus to obtain a practical scheme for Home Defence, based on sound Imperial principles.

## CHAPTER II.

### GENERAL PRINCIPLES OF IMPERIAL DEFENCE.

The first essential principle of Imperial Defence is the sufficiency and efficiency of our fleet. The necessity for this faces us everywhere. Our Empire exists by the sea; the communications between the various parts are over the sea; the "command of the sea" is essential to the successful issue of a war.

This necessity is, I think, generally recognised, and our standard of strength is usually taken as that required to meet any two other Powers, which practically means any probable combination of hostile forces. Expert naval opinion is not at present equally unanimous as to how far our present fleets meet this requirement; but the balance of opinion seems to be that, at this present time, we should be able to engage with every prospect of success any opponents likely to unite against us. But to bring a war to a successful issue two things more are necessary to support and supplement the action of the fleet. First, an adequate garrison at all ports or harbours required as bases for our Navy, as coaling stations or harbours of refuge on our long lines of sea communications or



as centres for our commerce. And, secondly, an adequate military force, to follow up any naval success by striking the enemy in his own country or possessions.

This last requirement is due to the fact that a Navy, however strong, is limited in its action by the enemy's coast line; without assistance from the Army, the Navy could hardly reduce one of the smallest hostile ports; and unless the enemy is so situated that his sea communications are vital to him, the only way in which sufficient pressure can be brought to bear is by an adequate military force.

But it should be noted that in our case this force will not be required immediately on the outbreak of war. Our action, if at war with a strong naval Power, would first be entirely naval. The fleet would be mobilised, and would endeavour to bring the enemy to action by occupying in force certain strategic points within striking distance of the enemy's naval bases. Cruisers on both sides would be at work attacking or defending commerce, and the torpedo-boat flotillas would be busy in attacks intended to hinder our naval mobilisation or to strike at our commerce by damaging some of the great centres from which the lines of communication radiate.

Almost simultaneously with this, a special effort would doubtless be made on both sides to push on the building of any ships under construction on the outbreak of war, to lay down new ones of the smaller types and to bring old ones up to date, so as to establish as soon as possible that overwhelming naval superiority on which ultimate success depends.

During this first period no invasion or attack in force on our coasts would be possible, and our field army could mobilise in absolute security.

But we may expect, if our opponents have torpedo-boat stations within striking distance of our naval ports, that they would make use of torpedo-boats, and possibly some cruisers, to attack these ports, and endeavour to hinder our mobilisation by attacks on our ships in harbour, or by obstructing the entrance channels. We should no doubt meet such attacks by torpedo-boat destroyers and similar craft; but it would be necessary as well for our coast fortresses which cover and protect naval bases, as Portsmouth and others, to be ready to tackle any opponents who escape the vigilance of the destroyers. Such attacks may be expected from the first moment of a war, until the mobilisation of our Navy is completed and our fleet of "destroyers" has succeeded in getting the upper hand of their opponents.

These general conditions would continue until a naval action had caused some modification in the distribution of naval force between the two sides. If the results of the first naval actions were indecisive, the conditions sketched out above would not be much changed, except that our superior resources in the matter of repairing damaged ships or bringing forward new ones would in time begin to tell in our favour; on the other hand, our commerce, from its very magnitude, would probably suffer more than the enemy's.



If the result of these actions was in our favour we should be in a position to follow it up by further naval action, and finally, with the aid of our field army, to strike such blows as would compel the enemy to come to terms.

So far our requirements as regards Home Defence are limited to the necessity of holding our coast fortresses, and this duty would be most urgent immediately on the outbreak of war, and would become less severe with every success of our fleet. If, however, the result of the first and subsequent engagements at sea are not in our favour, but such as leave our fleet in home waters in the minority and insufficient to risk any further engagement, a set of conditions would arise which require rather more detailed consideration, as they have a very direct bearing on the subject of this essay.

If by an almost inconceivable combination of circumstances our fleets all over the world were so totally and utterly defeated that they were unable in any reasonable time to again dispute the command of the seas, we could perhaps save the mother country from invasion by having in it an army able to meet any force which an enemy likes to bring over, but we should certainly lose our Empire, as all our outlying possessions would fall in turn.

It may be noted also that, although an enemy who had entirely destroyed our fleet would be at liberty to invade these islands with any force he likes to bring over, it would not be necessary for him to do so. The capture of our coaling stations and the destruction of our shipping would eventually divert the greater portion of our trade into other hands, our Colonies would break adrift, and the Empire would be dismembered.

In the event of the total defeat of our fleet we should have no alternative but to make peace at once on any terms, and the only way of avoiding such a catastrophe is to have a fleet of such a size that its total annihilation is impossible.

At the same time, I do not think a temporary and local defeat of our fleet is very improbable, or incompatible with the principle I have just enunciated. No Power or combination of Powers would be likely to go to war with us unless they thought they had a reasonable chance of success at sea; and, given anything like an equality of forces, the result of a naval encounter is so doubtful that we can hardly omit the possibility of a defeat from our calculations.

We must then be prepared to find ourselves occasionally in a position of partial inferiority, though such a position would probably be only temporary, as in addition to our unequalled resources for repairing our ships, which would in time enable us to make good any loss not absolutely overwhelming, it is more than probable that the success of the enemy would be limited to European waters; for, although our naval strength as a whole may not be much greater than any possible combination of other Powers could put on the seas, the proportion of our strength at stations outside Europe is ample for nearly every contingency, so that, even if our fleets in home waters were defeated, we might be able to concentrate some of our ships from abroad in sufficient force to enable us to again dispute the command of the sea.

This operation would necessarily take some time, and meanwhile the enemy would be at liberty to take action against us in various directions.

In such a case, four principal courses of action appear to be open to him. First, he could follow up his success at sea by attacking the ports in which our beaten fleets had taken refuge, as was done by the Japanese at Wei-hai-Wei and by the Americans at Santiago-de-Cuba; such a course would be most probable if his relative superiority at sea were not very large, as it would be vital to him to further reduce our naval strength before undertaking other operations.

Secondly, he might reduce our ports or coaling stations abroad, as Malta, though such an undertaking would be only a by-issue, unless one of our fleets had taken refuge there, and would thus be bad strategy as long as there was any chance of our again disputing his superiority at sea.

Thirdly, he might blockade these islands by sea with a view to stopping our commerce.

And, fourthly, he might invade these islands in force and occupy London.

The last is the only course which, in my opinion, would be open to him; but, before discussing this further, I think a short space might be devoted to the consideration of the third possibility—the destruction of commerce. The question of starving us out by stopping our food supplies does not arise in this connection, for even if a blockade could be made absolute, there is always from three to six months' supply in these islands, and, under the conditions I have supposed, a definite decision would have to be reached in considerably less time.

It is often argued, especially by the more advanced supporters of the necessity for an increase of the Navy, that a defeat of our fleet of such magnitude that we cannot face the enemy at sea would be followed by such a disturbance to our commerce, and consequently such a reduction of the raw materials necessary to our manufacturers, that we should be compelled to sue for peace. And, further, that any prolongation of hostilities under these conditions can only aggravate our position.

I think a little consideration will show that this argument cannot be sustained. For it must be remembered that commerce consists of a great deal more than the merchandise actually afloat at any moment. A trade such as ours requires ports all over the world, docks for repair and building of shipping, wharfs and warehouses for handling the goods, and a large mass of communications on land for their collection and distribution. All these are additional to the ships required for carrying goods and the men required for crews. The outbreak of war alone would be sufficient to paralyse much of this machinery, the smaller and slower vessels would be laid up, the larger ones would proceed by strange and probably longer routes, and that portion of our trade which was carried on directly to or from the country with which we were at war would necessarily entirely cease.

But on the conclusion of the war, provided it does not involve any large cession of territory on our part, I can see no reason why this machinery, temporarily laid off, should not start into nearly full work again, a little rusty perhaps, but still serviceable.

Our permanent losses would be represented by the value of the actual ships and cargoes captured by the enemy, and also by the loss of some of the carrying trade done by us for foreign countries.

Of course, if any cession of territory takes place—if, for instance, Hong-Kong were wrested from us—our opponent would be able, by imposing hostile tariffs, to practically annihilate that portion of our commerce passing through this port, even if he did not capture a single ship. The principal case brought forward by the upholders of the views I have mentioned is the transfer of the carrying trade of the United States to British ships during the American Civil War. But detailed investigation will show that the conditions then were totally different to any that could arise now.<sup>1</sup> The total trade of the United States was then small compared with that of Great Britain, and the latter was thus able, with a very small extra effort, to absorb the whole trade of the former.

At the present time the total tonnage of British ships is considerably larger than that of the whole world put together, and it would be impossible for neutral ships to absorb more than a very small percentage of our commerce, as there would be neither ships, crews, ports, nor coal available—the last being a somewhat important item.

As long as we hold to the ends of the lines of communications I do not see how any great permanent loss of commerce could take place.

We must also remember that a defeated combatant has not usually any choice as to the time and manner of making peace; and, if we were driven to sue for quarter, we may expect to find the terms onerous. Any combination of Powers which had taken the risk of going to war with us would hardly be content to resume the *status quo*; the transfer of Gibraltar, Malta, and Hong-Kong, the surrender of our fleet, and a heavy money indemnity, are among the terms which might reasonably be asked. I cannot conceive any Government or any body of voters who would accept such terms except in the direst extremity, and who would not prefer to continue to fight, even though to do so involved the total suspension of that portion of our commerce at sea which comes to or from the British Isles. The suspension of our commerce would at worst mean temporary restriction of our food supply and necessarily much distress, but the loss of Colonies and commercial ports would threaten to make that distress permanent.

Our continuance of the war must, however, be subject to one condition—the possibility that by holding out, our Navy may be given time to recover its position and again dispute the command of the sea.

Under such conditions, where time is an element in the problem, and where delay would be a source of danger, an enemy in order to strike a vital blow would be forced to an invasion of this country with a

<sup>1</sup> This question has been very carefully examined by Sir G. S. Clarke in a paper in the *United Service Magazine* of September, 1890.

view to occupying London. No other course seems to give him any promise of final success. The occupation of London, following as it necessarily would the defeat of our field army, and thereby giving the enemy the power of capturing all our coast fortresses in detail, would so cripple us for further action that we should be compelled to accept any terms.

If this is correct, no scheme of Home Defence could be considered complete which did not provide in the last resort to meet an invasion by a considerable hostile force, however remote we may hope or even expect such a contingency to be.

The relation between our home army and the Navy is, in fact, much the same as that which exists in a Continental war between a strong central fortress and a field army, our Navy representing the mobile army, the whole extent of the British Isles being the central fortress.

If the field army is successful, the fortress cannot be attacked in force.

If the field army is defeated and retires under cover of the fortress, the latter by holding out can give the field army time to re-organise or to receive reinforcements, and so to renew the attack.

If the field army is under shelter of the fortress, the enemy would have to exhaust every nerve to reduce the fortress and so to strike at the army.

If the field army is entirely dispersed, the fortress could hold out, but could not affect the issue of the war by so doing.

The Franco-German War gives us an almost exactly parallel position. After the defeat of the French armies in the field, the central fortress of Paris held out and withstood the Germans for months, putting an enormous strain on their resources. The object of so holding Paris was to give the French time to raise fresh field armies in the provinces. The fact that the French were unsuccessful in this was not due to faulty principle, but to the crushing defeats sustained by their field armies in the early part of the war.

Fortification only represents delay, and unless that delay can be turned to advantage, fortifications—in which term I include the defence of coast fortresses as well as the defence of London—are not worth defending.

Although these islands must be defended, any attempt at meeting an invasion by holding the coast line would be certain to result in disaster. The invading forces can choose their own time and place, and can move their troops by sea much more quickly and in larger numbers than is possible on land. Unless we are prepared to actually line the whole coast in great strength we cannot, once we have lost the command of the sea, prevent troops landing almost where they please, and any arrangement of armoured trains running along the coast and similar schemes would prove absolutely futile. The only portions of the coast line which should be defended are the harbours or ports required to assist naval action.

Once the invaders are landed, the conditions change; their means of transport are limited, and their line of attack would be determined, and they can be met under conditions which would be decidedly favourable to the defence. The best way of meeting invasion is thus to provide a sufficient force in the field to defeat the enemy after landing.

This would not prevent some fortification round London, as in the case of an invasion our capital is necessarily indicated as the primary objective, and it would be well to make some preparation beforehand in the direction of fortified positions on the most probable lines of attack.

Although such consideration as I have been able to give to the very intricate questions involved leads me, as a last resort, to the necessity of a field army for Home Defence, I cannot but recognise that the conditions which would make such a state of things possible would be conditions very harmful and very dangerous to the Empire at large. If our losses had gone so far that we had to rely on a home army, it would require a very remarkable exercise of self-denial on the part of the people and of enterprise and resolution on the part of the Government to stem the tide of disaster and to enable us to emerge successful, if not altogether scathless, from the ordeal.

It follows as a logical sequence that it will be uneconomical and even disadvantageous from an Imperial point of view to organise a home army which would not be also available for offensive operations, if required, in any part of the globe. The field army for Home Defence can only come into operation after a defeat of our Navy, while the field army for service abroad could only leave England after successful naval action had ensured its safe passage across the sea. The two conditions cannot co-exist, and thus two separate armies are not required.

It has been urged that we might start a war with a single Power, and, after we had despatched our field army abroad, might find ourselves involved with other Powers and threatened with invasion, to guard against which we should require a home army.

Such a case, however, would be most favourable for the action of our Navy, as each Power would be tackled at sea in succession instead of in combination. Our Navy would also have had time to mobilise and to occupy the best strategic positions, and all our shipping at home and abroad would be warned. In such a case our ultimate success at sea should be certain.

The most dangerous contingency, in fact the only dangerous contingency, would be a sudden combination of several Powers against us; for each of these Powers to come into action singly would be for them to invite defeat.

In any case, the fact that the whole, or nearly the whole, of our field army was organised for possible service abroad would not necessitate the whole of it being removed from these islands for every emergency; while the knowledge that we could, if we liked, put a large force in the field to back our Navy would probably be a most potent factor in the calculations of our possible antagonists.

We are now in a position to sum up our requirements for Home Defence. These are:—

1. Garrisons for coast fortresses.
2. A field army, available for general service.
3. Light fortifications round London.

The conditions under which these come into action are, however, different.



The garrisons of coast fortresses are required immediately on the outbreak of war, and are of the greatest importance during the naval mobilisation. Once the Navy is mobilised their importance declines with every naval success, or again, increases with every naval defeat. If the Navy is successful in obtaining the command of the sea, the duties of the garrisons of coast fortresses become very light, though they do not entirely cease. The bulk of the garrisons would then be used to support the field army in active operations across the sea.

If the Navy is defeated and forced to take refuge under the guns of our fortresses, the latter become of increased importance and might require larger garrisons. Some assistance in such cases would, however, be given by the Navy, and it would also always be possible to supply reinforcements. The field army, on the other hand, would have no duties immediately on the outbreak of war, and could mobilise under fairly easy conditions. If the first naval operations are successful, a fully equipped, well-trained force would be required for operations against territory, with strong reserves to follow up any success or to replace waste.

If the Navy is unsuccessful, the Army may be called on to reinforce the garrisons of the coast fortresses, or finally may have to meet an invasion in force, directed in all probability against London; but this last condition could not arise till some time after the outbreak of war.

It will be observed that only in the last contingency would the coast fortress garrisons and the field army be both in active operation at the same time. If we are in a position to send an army abroad, we are also in a position to withdraw troops from the coast fortresses to support our field army; but if we are threatened with invasion we require both.

Again, the importance of the coast fortresses at any time varies exactly with the stress on the Navy; so that when the Navy has to be at its strongest, or is in most urgent need of reinforcement, the coast fortresses have to be at their strongest also.

Both these points have an important bearing on the detailed consideration of our Home Defences; the latter, to my mind, furnishes a conclusive argument against handing over the charge of coast fortresses to the Admiralty; the former enables us to reduce our mobile forces in certain details, as will be seen in a later chapter.

### CHAPTER III.

#### STRENGTH, ORGANISATION, AND COMPOSITION OF THE GARRISONS OF OUR COAST FORTRESSES.

I now propose to consider more in detail the garrisons required for our coast fortresses and their organisation, and I do not think these requirements can be more aptly summed up than in an expression used by the late Sir George Tryon in an article in the *United Service Magazine* of May, 1890, where among other requirements of defence he speaks of "Coaling stations and strategical harbours defended and kept, as our ships in commission, always ready for war."

In contrast with this, I may quote the "Army Book for the British Empire," p. 512. There, after describing the arrangements for allotting garrisons to the coast fortresses, the writer continues:—

"The result is to give for each garrison a somewhat heterogeneous assemblage of troops composed of excellent material, but at the outset certainly wanting in training and cohesion. *After a month or so had elapsed,*<sup>1</sup> it is probable that they would develop into a well-drilled and efficient garrison force." Since the above was written much has been done to improve the arrangements at many of our coast fortresses, but very much still remains to be done before they can satisfy the requirements of Sir George Tryon, that they should be as ready as a "ship in commission."

The fact is, our coast fortresses have a twofold function. In the early phases of a great war they are the bases of naval action, covered from any serious attack by the fleets which they supply, and liable only to raids by small detached squadrons. In the latter phases, if the covering fleets are driven in, the coast fortresses become the outposts of a much larger organisation for defence of which the centre is London. In the latter case, attacks may take place in any strength, but for the attack to succeed it must capture not only one or two of the outposts but the citadel as well.

The two authors I have quoted are apparently referring to different phases, Sir George Tryon laying most stress on the ports as naval bases, and the writer of the "Army Book" having in his mind the conditions which would cause most strain to our mobilisation arrangements.

Any scheme of organisation for our coast fortresses must provide for both contingencies, and of the two the first—though requiring the smaller garrison—is the more important. Also in this case the greater does not include the less, for while it is undoubtedly true that the later phases would demand much larger garrisons and more extended fortifications, it is not equally true that these garrisons and fortifications would give us a complete and suitable defence against raids. A little consideration will make this point clear.

The essence of a raiding attack would be surprise, the objects being the destruction of shipping, coal, or docks, or the obstruction of the entrance of a port. The attack would necessarily take place at night or in a fog, and anything in the nature of bombardment, or indeed any form of gun-fire, except at very short ranges, would be impracticable. The methods of attack would be to use torpedo-boats, or small landing parties, very similar to the old cutting-out expeditions. The defence against such attacks need not be pushed far to the front, but should rather be withdrawn and concentrated at a narrow part of the entrance channel.

The essentials for defence of the sea front of a coast fortress under these conditions seem to be an adequate provision of Q.F. guns, using a smokeless powder and firing over an area thoroughly well

<sup>1</sup> The italics are mine.

illuminated by electric lights, passive obstructions and mines where permissible with due regard to the traffic, a careful organisation of traffic in and out of the fortress, and a thorough and systematic look-out by night and day.

Landing parties could not be very large, so any serious attack on the land side of a fortress would be impossible, and further, a landing at any distance from a fortress would take too much time. A small force protecting the flanks of the shore batteries and pickets on the more important docks, stores of coal, or magazines, should suffice for the land defences.

Larger guns cannot be altogether omitted, but the provision of these against the larger form of attack will be ample for this stage.

The attack in the later phases would be on a much larger scale, every resource of modern science might be brought to bear, and the co-operation of forces on land would be essential to success. The requirements for the defence of our sea fronts in such a case are a moderate provision of heavy and medium guns (the latter Q.F.) placed in carefully designed forts, the whole being pushed well to the front to keep the enemy at a distance, electric lights for night work, and a strong defence of submarine mines and other obstacles. With the defeat of our fleets, our commerce would have been largely suspended, and while a fortress was being attacked the traffic in and out would of course be stopped.

On the other hand, no enemy is likely to expend ships and men and waste time in attacking a coast fortress unless it was sheltering some portion of our defeated Navy, and therefore in the event of an attack considerable naval co-operation might be expected, though if the fortress were too lightly fortified an enemy might be tempted to occupy it for use as a base for further operations; with fortifications and garrisons on the scale which I think is necessary, an attack with this object is improbable. A large garrison would be required for the land front, sufficient to hold the defences for some days against an attack in force, but the whole garrison which might be necessary in certain eventualities would not be always kept in the fortress.

The landing of a sufficient force to successfully attack one of our large fortresses would take some time, and its use against the fortress at all would depend on its being able to hold our field army in check. The best active defence of the land fronts of our coast fortresses is an efficient field army within striking distance. The complete investment of a large fortress would take some days, and reinforcements could almost certainly be introduced after the enemy has definitely shown which fortress he proposes to attack.

The position of the railways and roads leading into a fortress is important in connection with this consideration.

The defences against raiding attacks already alluded to will be very useful during this later stage, but they will be more of the nature of an inner line than, as they were in the first case, the main line of defence, and some of this portion of the garrison would be available for other work.



If these conclusions are, on consideration, found to be substantially correct, the composition of the garrisons of the coast fortresses will be clearly indicated. We require, first of all, a permanent garrison in each fortress, in sufficient strength to efficiently man all the defences required to resist a raid, and which should also include the necessary staff and specialists for the working of the remaining portions of the defence. This garrison must be thoroughly trained, well acquainted with its duties, and living as far as possible in close proximity to its fighting stations. In addition, we want an auxiliary force in reserve of two descriptions:—First, a body of specially trained men to reinforce the regular garrison and assist in the defence against raids; and, secondly, the larger addition necessary to enable the fortress to resist an attack in force by land as well as by sea.

The first portion of this reserve must be thoroughly trained, must be capable of very rapid mobilisation, and should be in position within a very few hours after the outbreak of war. This portion would remain permanently embodied as long as any attack was expected. The second portion will have longer to mobilise, some of it would be in position within the first week, the rest might not be moved into the fortress until wanted. This portion would only be required if our fleet were unsuccessful and an attack were imminent, when the whole garrison would of course be under arms.

The term "auxiliary" is used above in its ordinary and not its technical sense, and signifies a portion of the garrison, not permanently embodied in time of peace. Whether this portion is best formed from the Reserves, Militia, or Volunteers, is discussed later.

The various arms required for coast fortress garrisons are given in Appendix I., and also the broad division of duties within each arm. It is improbable that a raiding force would be accompanied by any cavalry, so that none of this arm would be necessary for the defence against raiding; any cavalry or mounted infantry which might be considered necessary in the event of an attack on the land fronts would form part of the second auxiliary garrison.

Any scouting necessary in the early stages should be done by a special corps of cyclists forming part of the first auxiliary garrisons.

The land transport necessary for the permanent troops will not be very large, and should form part of the garrison in peace. But in most cases considerable additional water transport will be required in time of war to communicate with outlying forts or across arms of the harbour. This could usually be hired, but sufficient officers and men for its proper superintendence should be included in the first portion of the auxiliary garrison.

The reserves necessary to bring any unit from peace to war strength are shown separately in Appendix I., and in addition we should require a reserve to replace casualties during war due to sickness and other causes in the permanent and also in the first auxiliary garrisons. The amount of this reserve should be about 25 per cent.

The second auxiliary garrisons would only come into full action under conditions which would require every available fighting man to be in the ranks; these conditions could not last long, and therefore no special reserve need be provided for this portion of the garrison.

The above considerations will, I think, sufficiently indicate the principles on which the strength, composition, and organisation of our coast fortress garrisons should be based, but the application of these principles to any particular case involves a number of local considerations which are too numerous to discuss in this paper, even if any individual could sufficiently master the details required. But I have given in Appendix I. the total numbers which would probably suffice for the coast fortresses of Great Britain and Ireland, giving the figures for each arm and dividing the whole into the three parts of permanent garrison, first auxiliary garrison, and second auxiliary garrison.

The figures are given in round numbers, but are sufficiently near for purposes of calculation as to conditions of service, source of supply, and similar details. These I propose to discuss in a later chapter after the requirements of the field army have been considered.

It may be observed that I have omitted the garrisons of the Channel Islands in these figures, for these islands, owing to their proximity to the mainland of France and their distance from England, require different treatment from our other coast fortresses. It would obviously be unwise to count on being able to reinforce their garrisons in the event of a war, and therefore these fortresses must be self-contained. Their auxiliary garrisons may be drawn from the existing local forces, but the units of the permanent garrison which are supplied from England must be kept always in readiness for war.

The total figures for the garrisons of coast fortresses are given in Appendix I. They amount to:—

|                              |   |   |   |   |   |         |
|------------------------------|---|---|---|---|---|---------|
| Permanent units -            | - | - | - | - | - | 21,000  |
| First auxiliary garrisons -  | - | - | - | - | - | 49,000  |
| Second auxiliary garrisons - | - | - | - | - | - | 88,000  |
|                              |   |   |   |   |   | <hr/>   |
|                              |   |   |   |   |   | 158,000 |

and the reserves to:—

|  |   |   |   |   |   |        |
|--|---|---|---|---|---|--------|
| To complete peace establishment of permanent units - | - | - | - | - | - | 7,700  |
| To replace waste in permanent units -                | - | - | - | - | - | 7,200  |
| To replace waste in first auxiliary garrison -       | - | - | - | - | - | 12,200 |
|  |   |   |   |   |   | <hr/>  |
|  |   |   |   |   |   | 27,100 |

or to a total of 185,100.

These total figures are probably rather less than the numbers at present allotted to coast fortresses, but may, nevertheless, be considered too large by those who consider fortifications unnecessary and invasion impossible.

To these I would point out that rapidity of movement resting with the attack, it is necessary to provide in each coast fortress to be defended

a sufficient force to meet any probable attack ; so that even if the attacking force expected is quite small, the total defending force required reaches a considerable figure. This force is, in any case, not all wasted, as it should be so organised that, in the event of our fleet being successful, at least two-thirds of the permanent garrisons could be taken for service on the lines of communication or similar duties ; while the second auxiliary garrisons, at any rate, would be only local forces on the lines of the present Volunteers, and would not be all called out till they were actually required.

Before leaving the question of coast fortresses, there is one detail of organisation which is all-important, and which I have not yet touched on, and that is the question of command.

Even a cursory study of military history will show that the successful defence of a fortress depends very largely on the individual who commands it at the critical time.

Gibraltar and Belfort are names which will occur to everybody in this connection, and others could be cited. These examples show that to obtain the best results from any fortress, not only must the commanding officer be specially selected for his aptitude and knowledge of this branch of military science, but the officer so selected should command the fortress during peace, to enable him to obtain the necessary local knowledge, to ascertain the capabilities of the various units detailed for the garrison, and to train these units during peace in the duties they would have to perform in time of war. The importance of this opportunity of practice during peace is much greater than is the case in our field army, for the coast fortress garrisons have to be ready for action at any moment, while the field army, owing to the protective action of our Navy, would certainly have some time to mobilise and organise.

Our present system of command altogether fails to provide for this important requirement. Under this system the whole of Great Britain and Ireland is split up into districts, each district, with a few exceptions, containing one or more coast fortresses and several field units, while the district headquarters are often located in the largest coast fortress in the district. The officers who will command each fortress in time of war, and their staff, are no doubt named during peace, but if the coast fortress is also the headquarters of a district these officers have no authority or responsibility during peace, and the war efficiency of the fortress suffers in consequence ; while in all cases the appointments, being merely local, are liable to constant change with any changes of units which may take place in the garrison, and the officers are taken rather from the accident of seniority or brevet rank than for any special fitness or aptitude for the work required from them. The units from which these officers are drawn also suffer, being deprived of their services just when they are most wanted.

The remedies I propose for this state of things are :—First, the removal of all district headquarters from coast fortresses ; and, secondly, the organisation of each coast fortress or, in some cases, group of fortresses

on a separate basis, with a specially appointed commanding officer and suitable staff. In fact, I propose to place the organisation of each coast fortress on the same footing as our foreign coaling stations are on at present.

The rank of the officer commanding would vary with the importance of the fortress and its liability to attack: thus at Portsmouth, Plymouth, Chatham, and perhaps Dover, major-generals might command; at Cork, Pembroke, or Portland, a brigadier-general; at Harwich or Falmouth, a colonel. Ports such as Liverpool or Glasgow, which though of the first importance are so far-distant from any possible hostile ports that they are safe from the more dangerous forms of attack, would be commanded by colonels. In some cases where a group of fortresses is scattered, a special officer of colonel's rank might be deputed to command an outlying fortress under the general officer commanding the group. The Needles and Sheerness are cases of this sort.

The officers commanding coast fortresses would be directly responsible for all executive duties within their commands. They would have officers on their staff for artillery, engineer, army service, ordnance, and medical duties, and, in short, each fortress would be self-contained in peace or war.

The general officers commanding districts, who would usually be lieutenant-generals, would be responsible for the co-operation of the field forces in their command with the coast fortresses, and would also be inspecting officers of all the troops in the district, whether in fortresses or not.

Such a re-organisation need not involve any great increase of staff, as the districts, being relieved of the detail work of the coast garrisons, would be reduced in number, and the staff thus saved distributed to the coast fortresses.

The scheme thus outlined is given in rather more detail in Appendix III., which must also be read in connection with the organisation of the field army, which is dealt with in the next chapter.

It may have been observed that in the distribution of duties in coast fortresses given in Appendix I., I have made no mention of two important details—the management of traffic and the construction of booms. Both these are at present managed by the local naval authorities under direct instructions from the Admiralty, independent of, though nominally in concert with, the local military authorities. Such an organisation is bound to break down in time of war, and is directly at variance with the principle of unity of command on which I have laid some stress. It also seems uneconomical to employ skilled naval officers and men on purely defence duties at a time when every available officer and man will be required to man our sea-going fleets.

In the case of the booms especially this skilled naval assistance is unnecessary; the greater part of the work can be performed by unskilled labour; while any skilled supervision could be found from the Royal Engineers, who carried out all the original experiments with booms and floating obstructions.

The handling of the traffic is on a rather different footing, as some nautical experience is undoubtedly necessary. The actual work of inspection of vessels, and the placing of pilots on board would, however, be done by local vessels unarmed, and requiring only their ordinary peace crews, on almost exactly the same lines as it is done in peace; but the supervision of these should during war be done by a naval officer, at any rate at the principal ports. The officer selected for this duty should, however, be a member of the staff of the military officer commanding the fortress, and would in this position be most useful in advising on other naval questions, organising a naval intelligence department in each port, and in communicating with friendly vessels or fleets.

#### CHAPTER IV.

##### STRENGTH, ORGANISATION, AND COMPOSITION OF OUR FIELD FORCES.

Having so far discussed in some detail the requirements of our coast fortress garrisons, we can now turn our attention to the field forces, but I do not think the consideration of these latter need take so long as the former. For, in the first place, the organisation of a field army is based on much the same principles all the world over; and, in the second place, considerable attention has been given of recent years to the preparation and composition of our first three army corps, with the result that they have attained a high standard of readiness. The most interesting problems affecting them are those discussed in a later chapter, as to the conditions of service and methods of supply.

Besides these three army corps there is, as a sort of second line, a heterogeneous collection of more or less organised troops, deficient in many important requisites, and hardly fit to face a well-trained enemy in the field. These present many points for consideration and improvement.

At present it seems evident that the defence of these islands really rests with our three organised army corps. The Volunteers, good as they may be behind defences, cannot, unless they can take the field, win a decisive battle. To effect this we must have our Regular troops.

We require, of course, behind our organised forces a reserve to draw on to meet contingencies, but even allowing for this the number of troops in our partly organised second line is altogether out of proportion to our first.

The point, then, which seems to me most to require notice in connection with the field army is to consider some arrangement which will extend the numbers in our first line and reduce those of the second, even if in so doing we reduce the total number. We should be much better off with, for example, six organised army corps and 100,000 men in second line, than as we are at present with three organised army corps and 300,000 auxiliaries and reserve.



But before we can proceed far in this direction, it is necessary to try to determine approximately what should be the maximum strength which we should keep ready for active service abroad, as this is obviously by far the most important consideration. Our general procedure as regards Imperial Defence, after our naval wants are satisfied, should be to provide an amply sufficient force to follow up the hoped-for naval success, with adequate reserves; and then, having got this, we should consider what additions, if any, are necessary to complete a scheme for Home Defence on the principles and with the limitations discussed in my second chapter.

Our present arrangements for active service abroad comprise two complete army corps—70,000 all ranks, with two cavalry divisions—13,000 all ranks, and troops for the lines of communication—12,000 all ranks, or a total of 95,000.

In addition, there are various unattached units, and a certain number of reserve men at the *depôt*. Besides these, arrangements are made to garrison certain stations abroad, as Malta, with Militia, and thus free a certain number of units for service elsewhere. The numbers who could be so freed amount to some 12,000, though all of these need not be replaced, as the possibility of relieving them at all depends on our having naval superiority, which itself secures these fortresses from any serious attack.

Taking all these details together, our force available for active service abroad may be taken as about 110,000.

It is, however, evident from the writings and speeches of ministers and the officers charged with our preparations for mobilisation that this figure is not based on our actual wants, but represents the maximum which can be sent abroad without unduly straining our present organisation.

A detailed review of all our requirements abroad would itself require an essay; but looking to the fact of our large and increasing military demands, on the Indian frontier, in China, in Canada, and in Africa, both north and south, we should hardly be satisfied with less than four complete army corps, three cavalry divisions, and some 40,000 additional troops, for the lines of communication and similar duties. Behind these we should have a reserve of 50 per cent. of the total strength to make good contingencies and supply waste.

Of the above, 23,000 men could probably be found from the coast fortress garrisons detailed in Appendix I., leaving a balance to be provided as shown in Appendix II., or a total of 278,000, and this figure represents the number of men who would be available for Home Defence outside the coast fortresses.

The figure last given includes the reserve of the field army for service abroad, but I think it is rightly counted on as available for Home Defence. For it should be part of our organisation, that these men, and also any who by reason of youth or temporary disablement are not yet fit for service abroad, should be organised in units, and thus rendered

capable of performing some of the less onerous duties connected with defence, such as garrisoning the fortifications round London or performing police duties in our larger towns.

The above force will give a body of troops for the defence of London practically equal to that provided at present, for assuming that one complete army corps and a cavalry division with a proportion of reserves are kept in Ireland—for which some field force would be certainly necessary in addition to the coast fortress garrisons—we shall have left in Great Britain three army corps, two cavalry divisions, and a reserve of 100,000 to 120,000 men ready for concentration round London. With such a force available for defence, an enemy would have to land, and, what is almost more difficult, to feed and maintain an army of at least 300,000 men. This number would severely task the water transport of any hostile State, and require a considerable time for preparation; an operation of this magnitude could hardly be conducted unless our loss of the sea was absolute.

It will be observed that while the force provided for service abroad with its reserves will be sufficient to provide an adequate field army for Home Defence, it will not leave any men available for coast fortress garrisons other than the permanent portion maintained in peace. It will therefore be necessary to make special provision for the auxiliary garrisons by providing local forces for them, which would not ordinarily be liable for service abroad. This is not altogether disadvantageous, as some garrison must be kept in the coast fortresses, even during a successful war.

The force given above cannot obviously all be maintained in time of peace, but must consist of cadres of more or less complete units, with an ample reserve to bring them up to war strength.

The best method of providing for this is discussed in the next chapter, which also considers how far the existing units and organisation are suitable for our requirements, and what improvements and alterations seem desirable.

We must not forget in this connection that in addition to the large force which should be available for service abroad during a war of the first magnitude, we must also arrange for smaller forces to be available at short notice for smaller wars such as we are constantly engaged in. This requirement is a very difficult one to satisfy, as these wars vary so much in size and nature. They are hardly sufficiently important to make a separate organisation desirable, but occur sufficiently often to disarrange our larger preparations for offence and defence.

## CHAPTER V.

CONSIDERATION OF OUR PRESENT FIELD ARMY AND OF MODIFICATIONS  
AND IMPROVEMENTS CONSIDERED DESIRABLE.

We are now in a position to discuss our existing army organisation in detail, and to consider how far it fulfils the conditions sketched out in the last two chapters.

It is evident in the first place that our Imperial requirements include many other duties than merely Home Defence; and these must always be kept in mind if our scheme is to be a practical one. One of these requirements, the necessity of having an adequate force for expeditionary purposes, I have already mentioned. Another and equally important one is the maintenance of a permanent force in India and many of the Colonies, and this in many ways limits us in our efforts at perfection of military organisation.

The numbers to be maintained for these purposes from the Imperial army are, from the Army Estimates for 1898-99, 73,162 for India and 41,500 for the Colonies and Egypt, or a total of 115,000 in round numbers. A brief consideration of the various methods of supplying this force will disclose some of the limitations to which I have alluded above.

Whichever scheme is considered the best for this purpose, one factor dominates all: the service must be voluntary, not compulsory, at any rate as far as the troops of the Imperial army are concerned. No nation would nowadays even consider a proposal to expatriate against their will any large body of men for military duty, and certainly a world-wide Empire could not be held together by such means. Local organisation in the larger Colonies might exist on a compulsory basis for purely local defence, though it is probable that with our fleets holding the seas, well-directed voluntary service would be sufficient for all needs. At present most of our Colonies are rather backward in this necessary organisation, and in spite of our increasing responsibilities abroad, in China, Africa, and elsewhere, some relief to our Imperial army may be given in the not very distant future. It does not seem too much to hope that an Imperial force, raised say in Canada, may, besides garrisoning Halifax and Esquimaux, provide a portion of the garrisons of Bermuda and the West Indies, that South Africa should help in Mauritius and St. Helena, or that Australia should send one or two battalions to Hong-Kong and Wei-hai-Wei. India already has a local force probably as large as can be safely maintained, and besides gives recruits to local units in Ceylon, Singapore, Hong-Kong, Mauritius, and East Africa. Even, however, with all possible assistance given from the sources I have indicated, there will remain a considerable Imperial force abroad to maintain by recruiting from within the British Isles.

Many schemes have been proposed for the organisation of this force, but practically they come under two heads:—First, the provision of a long-service army for service abroad, separate from the army for Home Defence



—occasionally varied by the proposal to split the army abroad into two, one for India, and a second for the Colonies; and, secondly, which is our existing arrangement, interchangeability of men and units between home and foreign stations, and one Imperial army for all Imperial duties.

It would take too long to recapitulate all the arguments for either of these alternatives, but one or two points may be noted, which bear on Home Defence. The provision of a separate army for service abroad would involve the existence of large depôts at home for the reception and training of recruits, with the necessary cadres of trained men; also there would be always men at home on furlough or invalided to be provided for, as Europeans after some years in a tropical climate require a year or two at home. It would be unreasonable to expect these men to live on their friends or find employment for the whole time they were in England, and they would have to be taken in at the depôts. Further, experience shows that recruits under a voluntary system must be taken young, and gradually trained and hardened for a year or two before proceeding abroad. The number of recruits required a year to maintain 115,000 men abroad would probably amount to 15,000, so that our depôt strength at home would be approximately :—

|                                   |   |   |        |
|-----------------------------------|---|---|--------|
| Recruits under two years' service | - | - | 28,000 |
| Depôt cadres                      | - | - | 8,000  |
| Invalids and furlough, etc.       | - | - | 10,000 |
| Total                             | - | - | 46,000 |

The objections to our existing arrangements are largely based on the constant drain on the home battalions caused by the requirements of our army abroad, but I do not think these objectors quite see where this argument will lead them; for unless we are going to increase our total force by 46,000 men, the depôts for the army abroad can only be provided by reducing our army at home by over one-third of its strength. We should thus be substituting for several well-organised units, necessarily incomplete but capable of expansion at need, a few larger units, ill-organised for home defence and not easily capable of expansion. I cannot see also that the lot of the remainder of the home army, thus freed from what some consider the incubus of the annual drafts, would be a very happy one. England is a commercial nation, and would infallibly require a good return for money expended. With no foreign service, all excuse for the present conditions of enlistment would vanish, and the period of army service would necessarily be reduced to two or three years with the colours. Drafts to the reserve would be substituted for drafts for abroad, much of the variety now attainable in the British Army would disappear, and the life of the army at home would be concentrated on the drill ground, with an occasional break for manœuvres.

Such an arrangement seems most undesirable from the point of view of Home Defence, as, apart from the question of the reduction of numbers, the loss of the experience and battle training now obtainable in India and elsewhere would be very seriously felt. The best training of an army is war, and the little wars which we constantly have on hand give useful

opportunities for a very large proportion of our Army to obtain this training. The benefit derived by the whole Army from this experience is incalculable; without it there is a danger of developing into an army of theorists.

There would also be considerable difficulty in providing recruits for two separate armies, and considerably higher pay would probably be necessary to obtain men willing to remain abroad for their whole service.

I think then that it is for the best interests of Imperial Defence, and is certainly best for Home Defence, that the present system of one Imperial army for all duties at home and abroad should be maintained, units and individuals being interchangeable as required, the cadres for training young soldiers at home being so arranged that they can be quickly expanded into units capable of taking the field for Home Defence, or as part of the field army for active service abroad.

Nearly twenty years' experience of such a system enables us to lay down some general principles which should guide us in fixing the number and strength of such units. First, it seems clear that the number of units which should be kept at home in any branch should never be less than the number of units abroad, so that there shall always be at least one unit at home for each unit abroad. Secondly, the strength of the unit at home must be so adjusted, that after deducting young soldiers under one year's service, and allowing for men absent from sickness and other causes, a sufficient nucleus shall remain to readily absorb the men from the reserve or other sources who are brought in to complete the unit to war establishment, branches which require a high standard of training being kept in a more advanced state than others. Thirdly, there must be, behind the organised units at home and abroad, a *dépôt* for the preliminary training of recruits, as without this the unit at home would be overwhelmed with the detailed training of men, and would lose much of its efficiency.

An organisation on the above lines will provide for the supply of the men required for stations abroad, and will also make the best use possible of the cadres which it is necessary to keep at home, but it will fail to fulfil the requirements of our home army in two important particulars. In the first place, none of the home units will be in quite good enough condition to take their place in the small force required for our frequent little wars, and this will be especially the case with arms like the cavalry and artillery, where a high standard of training is required to obtain efficiency. In the second place, the total number of units obtained by the above method alone will be insufficient to provide the force required for our home army as given in Appendix II.

In order to meet the first difficulty, the only satisfactory way appears to be to keep a larger number of units at home than are actually required to feed the units abroad. These surplus units can then be kept up to nearly war establishment and ready for immediate service. This method is now adopted in all branches except the infantry, for which other methods are being tried. On these I shall have something to say when considering each branch in detail.

As regards the second difficulty noted above, these extra units will in a few cases go far to meet the deficiencies of our home army, but for the infantry especially and in other branches, it will be necessary to organise an auxiliary force, not mobilised as a whole in time of peace, but sufficiently trained to take its place side by side with the more permanent units, whether for Home Defence or for service abroad. This is the point where I think our present organisation is most deficient, and which therefore most requires consideration.

There are at present two auxiliary forces existing side by side—the Militia and Volunteers—with ill-defined duties, overlapping in many ways, and with very different terms of service and modes of training. The Militia is the old constitutional force, is already liable for service abroad, and gives a considerable time to training. The Volunteers are not liable to service abroad—indeed, cannot be called on even for service in Ireland—have a very low minimum standard of training, and are only intended to be called out as a last resource. The zeal and spirit of self-sacrifice which characterise this force as a whole are factors which must not be overlooked, but these are hardly a substitute for sound military training, and taking all points into consideration it seems undesirable to attempt to give this force the training and organisation which would be required to enable it to fight side by side with our army in the field.

I would propose therefore to allot to the Volunteers the duty of finding the whole of the garrisons of our coast fortresses, except those permanent units given in Appendix I. Such duty would be consistent with the conditions of service and training of the Volunteers and with the intention of their first organisers, and by giving our Volunteers this definite sphere of responsibility we should, I think, encourage the development of all the better qualities of this force.

The Militia I propose to free entirely from all fortress duty, with the exception of the garrison of London, and to organise as a force of all arms, liable to service in war-time in any part of the world, and with a training suited to the duties required. Before entering on this more fully, it is necessary to consider each branch separately, to divide the total number of units required as shown in Appendix II. between our Permanent Army and the Militia, allowing of course for the permanent portion of the coast fortress garrisons shown in Appendix I. The strength of each unit will not be given here, as it depends almost entirely on the conditions of service and will be discussed in a following chapter.

The principles on which I propose to allot the units between the permanent and the Militia forces are—in addition to the requirements of the army abroad, which fix the minimum number of units to be maintained—to make up the 1st Army Corps entirely of permanent units, so that it may be able to supply a force for our small wars, and then to distribute the remainder of the permanent units evenly between the three army corps, increasing or reducing their number as may be necessary.

It may be noted that in fixing the total numbers at those given in Appendix II., and in proposing to draw the auxiliary field force from the Militia, I am not suggesting any very marked changes. Our establish-

ments of permanent forces at home, Reserve and Militia, as given in Army Estimates for 1898-99 are 130,000, 83,000, and 126,000 respectively, or a total of 339,000, and thus there are already sufficient men if properly organised.

Taking each arm in detail and commencing with the cavalry, we require 27 regiments for our field army, 9<sup>1</sup> for India, and 3<sup>1</sup> for the Colonies, excluding the temporary additions to the force in Egypt made this year. There are provided in the Estimates for 1898-99, 31 regiments including 3 of Household Cavalry. This leaves 19 in all available for home service, which number would be just sufficient to provide for the three cavalry divisions proposed and for the corps troops of the 1st Army Corps. This would, however, leave no Regular cavalry regiments, unallotted, and I therefore propose to increase the number of permanent regiments by 3 (2 Hussars and 1 Lancers); this would leave 5 regiments to be provided from the Militia or other similar organisation.

Of Horse Artillery we require 18 batteries at home and 11 in India, or 29 in all. Of these we have 21 at present, leaving 8 to be provided. These must all be permanently organised, and would be best provided by transforming 8 of the existing field batteries into horse artillery.

Of Field Artillery we require 78 batteries at home, 42 in India, and 4 in the Colonies, or 124 in all. We have in the Estimates for 1898-99, 103 batteries, giving 57 available at home. Deducting the 8 batteries which are to become Horse Artillery, we are left with 49 batteries; this is sufficient to allot 9 batteries (3 brigades) as the corps artillery of each army corps, to supply a brigade of 3 batteries to each of the three divisions of the 1st Army Corps, and will then leave 4 batteries over. To complete our brigade formation one of these batteries should be reduced, and we shall then require to form 30 additional batteries from the Militia. One of the brigades allotted to each army corps will be armed with field howitzers.

The artillery ammunition columns maintain only a skeleton in time of peace; some of the men required for them will be drawn from the artillery reserve, but the bulk might with advantage be supplied from Militia units. Ammunition parks could be similarly treated; but as they are only required for service abroad, some of their strength would be drawn from the artillery in coast fortress garrisons.

Of Mountain Artillery we have only 1 battery at home, and this is a depôt for 9 batteries abroad. This arm is not required for Home Defence.

Of Garrison Artillery we have 46 companies at home, against 37 in the Colonies and 27 in India, a proportion which must throw rather a heavy strain for drafts on the home units, though the actual proportion abroad of the total number—11,800 out of 21,000—is not higher than in some other branches. These figures point to the desirability of increasing the local units of Garrison Artillery abroad as far as possible.

<sup>1</sup> These and the following figures are taken from the distribution given in the Army Estimates for 1898-99.

Of Engineers we have sufficient for working electric lights and submarine mines in coast fortresses, but our general service companies are deficient in number; and of the field units we are short of 1 mounted unit, 2 pontoon troops, 2 telegraph units, 3 balloon sections, 8 field companies, 2 field parks, and 2 railway companies. Of these, the mounted unit, the telegraph units, and the balloon sections should be permanently formed, the remainder should be formed from the Militia, as might be also some of the units, as pontoon troop, field companies and others, now permanently provided for the 2nd Army Corps. The ordinary Engineer duties in the field are very suitable for a mixed corps of Regulars and Militia, as much of the manual labour consists in work at civil trades, though the officers and a proportion of the non-commissioned officers and men must have a high technical training, and be capable of supervising and directing working parties. The units for railway work require a higher proportion of specialists, but might otherwise be similarly treated.

The total strength of the Engineers abroad is considerably less than at home, and their foreign service presents no difficulty, though the proportion of "general service" (at present called "fortress") companies is rather high abroad.

Of Infantry we require at home 121 battalions for the home army, 14 battalions for coast fortresses, also 27 battalions in the Colonies and 52 in India, a total of 214 battalions in all. In the Estimates for our permanent Army for 1898-99 there are provided 157 battalions in all, including 9 of Guards.<sup>1</sup> Of these, 3 Guards battalions and 76 Line battalions are in India or elsewhere abroad, leaving 6 Guards and 72 Line battalions at home, or counting the Channel Islands as abroad, 78 Line battalions abroad and 70 at home. It will be observed that this proportion gives 8 less Line battalions at home than are abroad, and though for reasons given above I do not anticipate any permanent increase of the numbers now allotted, it would be unwise to expect any decrease, and I would propose to restore the balance between our infantry units at home and abroad by raising 8 additional Line battalions for home service, making 78 in all. I would then allot 25 Line battalions to the 1st Army Corps, 13 Guard or Line battalions to each of the remaining three army corps, and 14 battalions to coast fortresses, leaving 3 Guards and 3 Line battalions unallotted. Of these, the Guards battalions will be required to act as feeders to their battalions in the field, but the Line battalions will be available for service on the lines of communication or other duties. We shall then require 12 Militia battalions for each of three army corps, and about 18 for miscellaneous duty in the field, or 54 in all.

Of the Army Service Corps we require in all 11,000 men for the home army, and about 500 for coast fortresses at home. We have at present about 3,500 employed, with 2,500 reserve, leaving some 6,000 to 7,000 to be found from the Militia, in addition to 5,000 required as a general reserve. The large proportion of these will be for transport duties, which should be done very efficiently by Militia.

---

<sup>1</sup> These figures include the additional 6 battalions added in 1898-99.



Of the Royal Army Medical Corps we require 4,000 for our home army, and about 500 for coast fortresses. We have at home about 2,000, with about 1,000 reserve. The remaining 1,500, together with the general reserve of 2,000, should be easily obtained from Militia units. As neither the Army Service Corps nor the non-commissioned officers and men of the Royal Army Medical Corps serve in India, foreign service should be easily arranged. The medical officers, however, have a very heavy proportion of foreign service, and the number of medical officers permanently employed at home should be largely increased.

Other departmental corps present no difficulty and call for no comment, but in our Army, as at present organised, there are several units which only mobilise in their fighting formation in time of war, not even a cadre existing in time of peace. They are the Mounted Infantry (3 battalions), the Signalling Corps (2 companies per army corps), and possibly some cycling corps for work on the lines of communications. All these should have permanent peace cadres, and the Mounted Infantry should be also kept at nearly war strength, if it is to be ready for duty with the cavalry divisions.

Summarising the above, it will be necessary besides 3 cavalry regiments, 8 infantry battalions, 3 mounted infantry battalions, a mounted detachment R.E., 2 telegraph units, and 3 balloon sections, which will be added to our permanent forces, to provide from the Militia the following units, to complete our field army for Home Defence or active service abroad:—

|              |   |   |   |                                  |
|--------------|---|---|---|----------------------------------|
| Cavalry      | - | - | - | 5 regiments.                     |
| Artillery    | - | - | - | 29 field batteries.              |
| "            | - | - | - | 19 ammunition columns.           |
| Engineers    | - | - | - | 3 pontoon troops. <sup>1</sup>   |
| "            | - | - | - | 12 field companies. <sup>1</sup> |
| "            | - | - | - | 3 field parks. <sup>1</sup>      |
| "            | - | - | - | 2 railway companies.             |
| "            | - | - | - | 9 general service companies.     |
| Infantry     | - | - | - | 54 battalions.                   |
| A.S. Corps   | - | - | - | 30 companies (6,000 men).        |
| R.A.M. Corps | - | - | - | 10 units (1,200 men).            |

In addition to these, we require a reserve, mostly at the depôts, of the numbers shown in the second half of Appendix II., and this reserve, for purposes of Home Defence, should be organised into units as follows:—

|                  |   |   |   |                               |
|------------------|---|---|---|-------------------------------|
| Cavalry          | - | - | - | 4 regiments.                  |
| Artillery        | - | - | - | 15 field batteries.           |
| "                | - | - | - | 30 position batteries.        |
| Engineers        | - | - | - | 18 general service companies. |
| Mounted Infantry | - | - | - | 1 battalion.                  |
| Infantry         | - | - | - | 54 battalions.                |
| A.S. Corps       | - | - | - | 20 companies (4,000 men).     |
| R.A.M. Corps     | - | - | - | 20 units (2,400 men).         |

<sup>1</sup> Including the units now permanently provided for the 2nd Army Corps.

In preparing a scheme for this, the main principle I advocate is that all men of the permanent forces, reserves and Militia, should in a time of national emergency be interchangeable between battalions of the same regiment, wherever these may be stationed at home or abroad. This principle is already admitted in part by the existence of the Militia reserve, the proposed employment of Militia in foreign garrisons, and the instructions in the mobilisation regulations that surplus reservists are to be posted to Militia units; I wish to extend the application of this principle: to place all the Militia on the footing of the Militia reserve, and to improve its organisation and training so that it can take its place side by side with our permanent forces.

The method by which I propose to apply this principle is described below, taking each arm in detail and dealing first with the units which are required for the field army.

The arm which is strongest numerically is the infantry, and it will be well to begin with the organisation proposed for this branch, the organisation of other branches will then be more easily understood.

In the infantry the arrangement for supply of men to the battalion abroad will be on much the same footing as at present. Recruits on enlistment would be trained at their *dépôt* in all elementary duties, including a recruit's course of musketry. This would take some 4 to 6 months. They would then join the home battalion for about 2 years, during which they would complete their military training; at the expiration of this time, that is, in their third year of service, they would be drafted abroad for the remainder of their service with the colours, on the expiration of which they would return home. A certain proportion of men would be allowed to extend their services as at present, on condition of completing 6 years abroad, at the end of which they would join the permanent cadre of the home battalion or the *dépôt*.

The service abroad of the officers and non-commissioned officers would be by roster, everyone being entitled to return home after 6 years abroad, subject to the changes consequent on promotions and to permission being freely granted for exchanges between those of similar rank. Young officers would all join the home battalion and remain with it until they have completed 2 years' service (including Militia service), when they would be available for service abroad.

The following points are essential to the successful working of this scheme:—First, the flow of recruits and the supply of drafts must be regular; secondly, every man enlisted who remains in the Army must take his turn of foreign service in due course; thirdly, the number of men permitted to re-engage must be carefully regulated by the numbers required for the home battalion; fourthly, the tour of foreign service being reduced, no officer or man should be brought home for duty at the *dépôt* or otherwise, unless absolutely necessary to maintain the proportion of each rank at home, or unless he exchanges.

It will be observed that I propose to send each man abroad rather later than is the case at present, and to reduce the maximum period abroad. This will tend to increase the annual numbers to be sent

abroad, though these will be considerably reduced by the decrease or invaliding consequent on the reduced term of foreign service and the higher age of the men going abroad, and also probably by a reduction in the changes among officers. Even if additional expense were involved, it is I think justified by the advantages gained by the proposed arrangement. The home battalion under this scheme would be composed of a cadre of seasoned officers, non-commissioned officers and men, all with some years' experience of foreign service, and drafts of young soldiers preparing for service abroad. The formation of the cadre of the battalion from men who have been abroad would have several advantages; amongst others, it would ensure experienced instructors for the young soldiers, the non-commissioned officers would be able to exert their authority over any reservists joining in time of war, and it would give an equitable distribution of the onus of foreign service. I think such a scheme would be preferable to that proposed by Mr. Brodrick in one of his speeches on the Army Estimates for 1898-99, when he suggested that to maintain the cadres of the home battalions, the numbers should be so arranged that some of the men would escape foreign service altogether, and complete the whole of their seven years' service with the home battalion. Such a course seems unnecessary and unjustifiable as long as the proportion of infantry abroad remains what it is at present. It could only be justified in any corps in which the proportion abroad was so low, that if each man took a tour of foreign service his time abroad would be reduced beyond a practical minimum. This minimum I should place at three years.

With this arrangement of reliefs there seems at first sight no reason why a hard and fast line should not be drawn between units at home and abroad, those now at home being always at a home station, and those now abroad at a station abroad, though liable to change between India and the Colonies. This would eliminate all the difficulties and inconveniences experienced when battalions are sent abroad with the consequent disturbance of recruiting and other troubles.

I think, however, in such a case we must have some regard to sentiment. Many of the present regiments are composed of battalions, which were formerly separate units, and as such have feelings and traditions based on the share they have taken in many a memorable action. Desirable as it is to encourage the mingling of such sentiments into one regimental *esprit de corps*, it would be going too far to condemn all the second battalions to the rather monotonous and uneventful duty of training recruits, while all the first battalions were abroad, and therefore I think an occasional change is desirable. There is, however, no reason for retaining the present tour of foreign service, which is for infantry about 16 or 17 years, and I propose to extend it to 25 years, reducing the number of regiments who have to change battalions to about three each year.

Men returning home on completion of their tour of foreign service would, with the exception of non-commissioned officers and others who are selected for service with the home battalion, be passed to the reserve



and be encouraged to remain in it as long as they can be considered fit for active service. In the event of a serious war the infantry units at home would be mobilised, as at present, by first eliminating all recruits of less than one year's service and all men sick or otherwise incapable of bearing arms, and then completing the unit by drawing on the reserve.

So far, I propose to follow fairly closely the existing organisation, but in the arrangement of depôts I would suggest considerable modification.

<sup>1</sup> The staff of the dépôt consists at present of two parts, the permanent detachment some 67 strong for a two-battalion dépôt, as voted in the Army Estimates, and the permanent staffs of the Militia battalions of the regiment, which vary considerably with different depôts. The Militia staff is composed only of drummers, sergeants, and higher ranks, and the conditions of service are such that it is largely filled by non-commissioned officers well advanced in years, glad to settle down in snug billets at home. Such non-commissioned officers, however good their character, and however high their personal attainments, are hardly fitted to give such a training to the Militia as will fit them to fight side by side with the Regular forces.

The first step I would propose to take to improve the Militia is to obtain a younger staff, and this I would do by amalgamating the dépôt detachment and the Militia staff at a dépôt to form the actual cadres of two or more Militia battalions, including in these cadres a good proportion of privates and junior ranks. Even when the Militia are not out for training there are many duties, such as cleaning of arms and equipment, which should be done by privates, and the presence of a few rank and file in each company who had had experience of war, or at any rate of foreign service, would go far to leaven up the whole.

These detachments at the dépôt I would obtain from exactly the same source as the cadre of the home battalion and a by strict roster, so that a non-commissioned officer or man of good character coming home from the 1st Battalion would on arrival home be sent to the dépôt, and after the usual period of furlough be posted to the 2nd (permanent) or 3rd or 4th (Militia) Battalions as required, and at the expiration of his period of home service, probably some four or five years, would, if he had elected to re-engage, be again drafted abroad. The remaining portion of each Militia battalion I would obtain, as at present, by voluntary enlistment, with, however, a longer first period of training. They should be enlisted under conditions which in time of war would make them liable for service with any battalion, permanent or Militia, of the territorial regiment, but in time of peace they should as far as possible be allowed to join whichever Militia battalion they prefer. The permanent officers at the dépôt, including the adjutants of Militia battalions, would be drawn from the officers of their regiment who had completed their first tour of foreign service, and would in time of war be part of one or other of the Militia battalions of their regiment. I would also at all

<sup>1</sup> Many of these proposals are based on a lecture given at the Royal United Service Institution in February, 1898, by Colonel J. D. Legard.

depôts have a proportion of Militia officers on permanent duty for a fixed period, say 12 months at a time, this would prevent the permanent battalion at home being too much drawn on for officers and would give the Militia officers a useful additional training.

I do not, however, propose to distribute the permanent cadres at the depôt evenly between its Militia battalions. On referring back to the detailed consideration of infantry duties, it will be seen that 78 battalions, in addition to Guards, are required at home and 78 abroad, and if all of these were grouped into depôts, each feeding two battalions, one at home and one abroad, we should require 78 depôts. In many cases, however, a depôt has to supply four battalions, and one, the Rifle Depôt, supplies eight. The tendency, moreover, is to make the four-battalion depôt the normal one, wherever the distribution of population admits, whether the four battalions are grouped into one regiment or two, and for any increase of battalions the depôts will probably be on these lines. The number of depôts is thus at present 60 and is being further reduced. I have assumed 54 depôts in the following calculations.

Now I propose that each depôt shall provide one Militia battalion with a specially high standard of training and efficiency, and at least one other Militia battalion with a standing much as at present. The special battalion, which I call the General Service Battalion, would be commanded on mobilisation by the officer commanding the cadres at the depôt, who should be a lieutenant-colonel, and would include the larger proportion of those cadres; its annual training in time of peace should be extended, and probably under these conditions there would be no difficulty in getting the pick of all the Militia of the regiment to serve in this battalion. In time of war it would be further strengthened and brought up to a fixed establishment by men from the Army Reserve. I can see no reason why a battalion thus constituted should not be as fit for active service at home or abroad as the permanent battalions on home service. All would want some little time to settle down, but from our hypothesis of the necessity of first establishing naval supremacy, this time would be always available.

On the formation of this first Militia battalion and its departure from the depôt, the second Militia battalion or the home service battalion, which will contain some of the original depôt cadre, will take up all the work of the depôt. It will absorb the remainder of the reserve, and if a force is sent abroad it will feed both its permanent and Militia battalions by drafts, replacing them by recruits who would, as stated above, be enlisted for general service. If, on the other hand, we had not sent our troops abroad, and an invasion was expected, of which we should always have ample notice, the drafts required would be much decreased and the home service Militia battalion would then, splitting off a detachment of sufficient strength for the depôt duties, form itself into a fighting unit 800 to 1,000 strong, and proceed to take up its allotted post behind the field armies.

This broad outline would of course be modified to suit each case, some depôts might be unable to provide a Militia battalion for general

service, others would provide two, but all depôts must provide at least one Militia battalion for home service, while many could provide more. Considering that there are at present 60 depôts and 126 battalions of Militia, there should under the above organisation be no difficulty in obtaining the 54 battalions for general service, and 54 battalions for home service which are required to supplement our permanent infantry units. In certain cases where difficulty might arise in allotting any particular Militia battalion to always perform secondary duties, I would suggest that each Militia battalion of a regiment might be allotted in turn to the home army, changing every 6 or 8 years. At the same time I do not think any battalion will be worse off than it is at present—excluded from participation in active service abroad, and liable to have the men of the Militia reserve withdrawn to feed its permanent units.

The above is in general terms the scheme which I prefer, and I think most people will agree that the extended duties I propose to give the Militia can be well undertaken by the infantry units.

When, however, I propose to extend this system to other branches, I expect to find greater opposition. This is especially the case with the cavalry and field artillery.

The principal arguments used against the formation of Militia units of these branches, are that the work is so special and requires so much training, that ordinary Militia would be unable to reach a sufficiently high standard, and also that it is absolutely necessary to train the whole unit to work together, which can be only done by maintaining these units in time of peace at nearly war strength. These arguments seem to be too far-reaching. It is doubtless true that Militia units of cavalry and artillery would not be as good as permanent units can be made, but the question is still open whether they may not be good enough for the work they would have to do. In considering this the proposed distribution of permanent and Militia forces within each army corps must be kept in mind. It will be observed that in the case of the cavalry I have allotted only permanent units to the three cavalry divisions and the 1st Army Corps. All that is required from the Militia is to provide the three regiments required for the 2nd, 3rd, and 4th Army Corps and some for the line of communications. These duties should not be beyond the capabilities of Militia units.

In the artillery I have followed the same principle, permanent units are allotted for the whole of the 1st Army Corps and for all corps artillery. Militia artillery would be required only for the divisional artillery with the last three army corps and for ammunition columns.

The question of the time available for the unit to shake down after mobilisation must also be considered. In most foreign nations with land frontiers the loss of a few hours might be of vital importance, and thus the cavalry is specially organised to be ready almost at once. With our sea frontier the necessity for constant vigilance disappears, or rather is transferred to the Navy and the coast fortresses; the bulk of the Army would have ample time to mobilise, and special provisions to save time become unnecessary.

In order as far as possible, without undue expense, to raise the quality of these Militia units, I would propose to give them a proportionately larger permanent cadre and also a considerable period of annual training.

The organisation of the cavalry would then take the following form. The permanent units will be grouped, as has been done lately, into corps, each corps containing a certain number of regiments of similar conditions of service. These groups are at present the corps of Household Cavalry, dragoons, lancers, and hussars. If the corps of hussars, which with the proposed increase of 2 regiments would contain 14 regiments, were split up into 2 groups for the purpose of foreign service and supply, we should have 5 groups of cavalry in all. Of these, the Household Cavalry, which are not liable for foreign service, would retain their present organisation, and would be ready to supply 2 regiments for the 1st Cavalry Brigade. Each of the remaining groups should have its *depôt* on exactly the same lines as I have proposed for the infantry, the *depôt* supplying trained recruits to the home units, and these units passing on trained soldiers to the units abroad.

Each group, except the Household Cavalry, would have 3 or 4 regiments abroad, and 4 to 6 at home, of which 2 in each group would be kept at a higher establishment. There would thus be 10 on the higher establishment including the heavy brigade, sufficient for 3 cavalry brigades, and the 1st Army Corps. It would be a good thing, from the point of view of foreign service, to make all ranks in any group interchangeable, just as they are at present in an infantry regiment of four battalions; such an arrangement would equalise foreign service between individuals, and make the whole organisation more elastic in time of war. It will, no doubt, be urged that these proposals will destroy *esprit de corps*, and that the annual drafts will upset the organisation of a regiment. Neither of these need follow. The feeling which we call *esprit de corps* would to a certain extent be diverted into new and wider channels, and pride in the corps or group would partly absorb and partly strengthen the existing affection for the regiment.

The question of the effect of foreign drafts on home units would not be peculiar to the cavalry, and its incidence and effect on efficiency depends very largely on the total strength of the regiment; a regiment of 600 men finding an annual draft of 100 each year would be no worse off than one of 500 with no draft, especially as the latter should have a shorter period of service, while the reduction of the *depôt* strength by using the home regiments as training ground for young soldiers, should enable these regiments to be kept on a higher cadre than would otherwise be possible. The arrangement of *depôt* squadrons recently introduced into our cavalry, in imitation of foreign Armies, seems to me a retrograde step. The conditions of service are quite different in the two cases; in foreign Armies the peace station and *depôt* of a regiment are identical, and they have no foreign service; in ours the peace station is frequently changing, and over one-third are abroad. Our cavalry service would, I think, gain immensely by locating its *depôts* and forming a local and territorial connection, as is done with the artillery at present.

The permanent cadres at the depôt would then, as with the infantry, form the cadres in time of war of the number of regiments of cavalry required to complete our field army for Home Defence. If the dragoon depôt were to form two such regiments for general service and one for Home Defence, and the remaining groups one of each kind, the numbers given in Appendix II. would be provided. The source from which the men required to complete the depôt cadres to war strength would be drawn would require careful investigation. Many would no doubt be reservists who had served in one of the permanent units and taken a share of foreign service, but some would have to be raised from other sources at home. The Yeomanry, if they would undertake the liability of foreign service in time of war as the Militia have done, would be sufficient in numbers and training. Failing them, a fresh start would have to be made of a Militia enlistment, or, as an alternative, a certain number of men might be taken for three years' home service and nine in reserve, with, however, a periodical training at least every third year.

That a sufficiently good force can be raised in any of these ways, I think there is no doubt, in view of the rather restricted nature of the duties required.

Taking now the Horse Artillery, we find that with the addition of the eight batteries proposed we shall have eighteen batteries at home to eleven abroad, which should make the provision of foreign drafts comparatively easy. A second depôt establishment would be required, but there would be no Militia batteries of this arm. Of the eighteen batteries at home, nine should be kept at a higher establishment and provide less than their share of the annual drafts. This number would provide for the three cavalry divisions and the 1st Army Corps.

Of the Field Artillery, we shall have 46 abroad and 48 at home, sufficient to provide for foreign drafts. I would divide these into 5 divisions supplying 18 to 21 batteries each, each division with a depôt and sub-depôt and a territorial connection, and each depôt or sub-depôt supplying the cadres of a Militia brigade of 3 batteries, or 30 batteries in all; in addition, each depôt would furnish a second brigade of field artillery, and each depôt or sub-depôt a brigade of position artillery for Home Defence only. Of the 48 batteries at home, 18 should be on the higher establishment, 1 division supplying 6 of these and the remaining 4 divisions supplying 3 each. These will provide the field artillery for the 1st Army Corps.

The general arrangements of the Militia brigades would be similar to those of the infantry, except that in the artillery the permanent cadres of the units for general service would be larger in proportion. The remainder of the officers and men required would be drawn from the same sources as our present artillery Militia, which would no longer be required for garrison duties. The lieutenant-colonel commanding the artillery depôt or sub-depôt in time of peace would in war command one of the Militia brigades. Here again I have little doubt of the efficiency of a service so constituted; the issue of guns of position to the Volunteers has already shown that considerable standard of training can be



obtained from forces not permanently embodied, and a Militia with a longer training than the Volunteers have at present, and with a solid backbone of permanent troops, should be capable of development into a very efficient force.

In addition to these purely fighting units, each division of field artillery should have allotted to it the duty of finding a proportion of the ammunition columns required for the field army; these would require much less military training, and might be almost exclusively drawn from the Militia.

The Engineer units for field service are at present drawn exclusively from the permanent force, with the exception of one company of Volunteer Engineers allotted to the 3rd Army Corps. There are in the United Kingdom, excluding railway, submarine mining, and electrical corps, 1,200 Engineer Militia and 12,000 Engineer Volunteers, nearly all of whom are in time of war allotted to coast fortresses. These are all trained through a long annual course, and in most cases attain considerable proficiency. They could provide very suitable material for many of the field duties. Also, as the field duties in India are all done by local troops the requirements of foreign service are very light, and it is for this reason desirable to keep the number of permanent field units as low as possible. I therefore propose to keep sufficient permanent units to supply the 1st Army Corps only, and for the other three corps to form Militia units on the same lines as for the infantry, but with a bigger permanent cadre. The telegraph and balloon units would require rather different treatment to the remainder, on account of the specially technical nature of their work. The balloon detachments are small, and the additional men required on mobilisation might be drawn from the general engineer reserve, or from picked men of other engineer units; but the telegraph duties will be very heavy, as so much of the success of modern war depends on the efficiency of this service, and some extension of the present 2nd Division Telegraph Battalion will be required; the Government postal telegraph duties provide a large field where the extra men of the permanent corps can be trained. There already exists a special branch of the reserve for telegraph duties, and this, if extended, would probably provide for the additional men required on mobilisation.

There remain for consideration the duties now done by the pontoon troops and field companies and the field park. These would be permanent units for the 1st Army Corps, but for each of the remaining three army corps I would propose to raise a Militia field battalion with strong permanent cadre, each battalion to consist of 1 pontoon company, 4 field companies, and 1 or 2 general service companies, which would provide the field park. All the men of the permanent cadres to be as far as possible equally trained in all duties, but the Militiamen, though trained in all, to be definitely allotted to one duty in war. The general engineer reserve, after completing the units of the 1st Army Corps, would be drafted to these Militia battalions. All engineers should be liable for general service in the corps, and thus the men of the permanent cadres would take their turn abroad in general



service companies, and also if we sent an expedition abroad men could be drawn from coast fortress garrisons to replace casualties in the field army. In addition to the units allotted to army corps we require railway and general service companies for the lines of communications. The railway duties would be done by one or more special railway Militia corps for which the existing engineer railway companies would provide the permanent cadre; for the Militia elements there should be ample material available. The general service companies should be drawn partly from the remaining companies of the field battalions and partly from one or two Engineer Militia general service battalions. For Home Defence these would be employed on the defensive works round London.

The organisation of the Army Service Corps and the Royal Army Medical Corps would follow on the same lines, Militia corps being formed as required and the permanent cadres being located in our larger military centres. As neither of these corps has permanent units abroad, there should be no necessity to move units at home. The cadres for the 1st Army Corps would be larger than for the remainder, would be completed from reservists, and have no Militia organisation attached to them.

The organisation thus sketched out is capable of various applications in addition to providing for our requirements for Home Defence or for a large expeditionary force, such as might be wanted if we were involved in a large European war. For instance, supposing we were engaged with a civilised or semi-civilised enemy, but one which required rather a larger expeditionary force than we keep ready for small wars, we could by a re-adjustment of brigades of infantry and artillery furnish a force of two cavalry divisions, and two army corps with the assistance of the reserve only, and without drawing on the Militia.

For a smaller expedition we can always take the units allotted to the 1st Army Corps with only such demands on the reserve as are likely to be easily met by voluntary service, though the infantry will be worse off than other branches, as there will be no infantry units at home which are not feeding units abroad.

It is not, however, necessary for these small expeditions to send units abroad with the same fighting strength as would be required for a larger war, and with the power of drawing on the reserve which is given by the Act passed this year, a sufficient number of battalions of good quality should be obtained. The system of four-battalion regiments also lends itself to considerable elasticity of organisation in this respect. The normal arrangement would be to have two battalions at home feeding two other battalions abroad and taking equal shares of recruits and drafts, but if the recruits were distributed in unequal proportions and the battalion which took the smallest number of recruits was allowed to accumulate a larger permanent cadre, it could be kept in an advanced state of readiness for war. There would also be much less objection to one battalion at home supplying drafts to another for a small war, if both battalions belonged to the same regiment and shared the same dépôt.

On the whole, I submit that the arrangement I propose is well adapted for all the varied requirements of the British Empire.

## CHAPTER VI.

CONSIDERATION OF OUR COAST FORTRESS FORCES AND OF DETAILS  
OF THEIR ORGANISATION.

The last chapter deals with the organisation of all the important units composing the field army, and also the infantry, army service and medical units required for the permanent portion of coast fortress garrisons; there remain to consider the permanent artillery and engineers for these garrisons, and also the organisation of the whole auxiliary portion.

Both the artillery and engineers have to supply a considerable number of units abroad, and there is this difference between the branches which are required only for coast fortress garrisons and those of the field army, that the former must be permanently at war strength, and would only draw on the reserve sufficient to replace men found unfit for duty on the outbreak of war, though a further reserve would in both cases be required to replace casualties during war. A further point of difference between the field and coast fortress units lies in the fact, that while the field units may be called on to fight under constantly varying conditions of place, the fortress units fight only in the locality in which they are stationed. There is therefore considerable advantage in moving field units about from station to station so as to give them experience of varying conditions of service, while in fortress units the advantage lies in keeping them in the same place and allowing them to obtain a thoroughly detailed knowledge of the locality in which they have to fight. I therefore propose to keep each coast fortress artillery and engineer unit permanently at one station, all reliefs being effected by drafts or individuals. This has been practically in force for some years for all engineer coast fortress units, at home and abroad, and is also admitted in the case of the artillery by the formation of district establishments for each station. These are practically companies permanently located, and I see no reason why all artillery coast fortress units should not be similarly treated. This would have other advantages besides the question of local knowledge; for instance, the difficulties of varying establishments at different stations would vanish, as each station would have exactly the establishment of each rank which it requires for fighting purposes, and where there was more than one company or unit at a station, each would have the establishment required for the particular portion of the defence to which it was detailed for fighting purposes.

With this alteration the organisation of the coast fortress artillery would remain as at present, except that the district establishment would be divided between the various units at a station.

The dépôt arrangements of this branch of the artillery are already organised on the principle which I have advocated above. They are decentralised, and have a territorial connection, and the central dépôts for drafts and promotions and so on are located at stations where their

cadres can be employed on defence duties at need. One branch of the engineers, the so-called submarine mining service, is also already organised on this principle; the training of the young soldiers is decentralised and established at stations where the permanent cadres are available for defence duties. This branch supplies the permanent portion of the engineers required for electric light, submarine mining, and torpedo duties. The present "fortress" branch of the engineers is not so well organised, the training of the men is still concentrated at Chatham, and their drafting and promotion is complicated by the change of non-commissioned officers and men between field and fortress companies. Fortress units are allotted to coast fortresses abroad in adequate numbers, but at home the only companies are at Portsmouth and Cork. I would propose to re-organise the present fortress service, a portion being amalgamated with the existing submarine mining units to form a coast fortress service capable of performing all the engineer duties detailed in Appendix I., and the remainder forming "general service" companies for duties in permanent camps in peace, or at the bases on the lines of communication in time of war; these "general service" companies would only differ from field companies in having no transport allotted for their use in time of peace, and the non-commissioned officers and men would be interchangeable between both field and general service companies.

In both artillery and engineers the existing strength of the coast fortress units is adequate to our requirements if organised on the lines given above.

This completes the consideration of all the permanent units of our home army, and there only remains the organisation of the Volunteers for the auxiliary garrisons of coast fortresses.

In using the term "Volunteer" in this connection, I do not mean to imply that the existing force of Volunteers is at present capable of performing all the duties required, or that the existing conditions of service of the Volunteers are the most suitable for an auxiliary force for coast fortress garrisons. The term is used in a general sense only in the same way as "Militia" was used in the last chapter, the essential difference implied being that the "Militia" units will all be available for service abroad should need arise, while the "Volunteer" units will only be liable for service in the United Kingdom. If this general principle is kept in mind, the conditions of service of any Volunteer corps may be varied to suit its locality. Many would no doubt carry out their training much as at present, others would more nearly approximate to the present training of the Militia.

It will be necessary to render all Volunteers liable for service in Ireland, and also to alter their legal status so that they, in common with all other branches of the Service, can be called out at any time of "national emergency," and not only when an invasion is expected. This last condition is essential if they are to be employed in coast fortress garrisons, and there is, I think, every reason to suppose that the great majority of the Volunteers would welcome the increased responsibility and the definite sphere of action allotted to them by this scheme.

A further alteration necessary is the division into two classes for the first and second portions of the auxiliary garrisons; this second portion would remain much as at present, with generally the same method of training and maximum standard of efficiency, though the reduction in total strength which will be possible, will enable the minimum standard to be considerably raised. In both portions the position and status of the officers should be improved and more nearly assimilated to that of the remainder of our forces.

There are two methods of raising the first portion of the auxiliary garrison: one by the formation of separate corps with a high standard of efficiency and a high capitation grant, and the other by encouraging selected companies or individuals of existing corps to attain the higher standard and earn the higher grant. The former method is that now used for submarine mining corps and the new corps of Electrical Volunteers, and might be applied with advantage to artillery duties; the latter would perhaps be best for infantry corps.

Either method may however be used, provided that in selecting corps or men for the first auxiliary garrisons, care is taken to omit men whose continued employment in their civil capacity is essential to the national welfare. Such men are the *employés* in our dockyards or arsenals, the staff of our lines of railways (except those for railway duties in the field), and all trades or employments connected with our food or coal supply. On the other hand, there are many trades, such as dock hands at our larger commercial ports, and trades and employments connected with the import or manufacture of luxuries, which are sure to suffer in time of war, whose *employés* would then be glad to find permanent employment in a military capacity.

The total number required for the auxiliary garrisons is, by Appendix I.:-

|                           |   |   |   |   |   |         |
|---------------------------|---|---|---|---|---|---------|
| For first portion         | - | - | - | - | - | 49,000  |
| For second portion        | - | - | - | - | - | 88,000  |
| Reserve for first portion | - | - | - | - | - | 12,000  |
| Total                     |   |   |   |   |   | 149,000 |

or an establishment of 180,000 would probably be required. The existing establishment of the Volunteers is 260,000, with about 230,000 effectives, so a reduction of 80,000 could be made on the total. In making this reduction, consideration would be given to the efficiency of any corps, those with the lowest standard being first selected for reduction, but in addition special regard should be given to the allotment of corps on mobilisation, so as to ensure that all are as far as possible within easy reach of their fighting posts. It might even be necessary to raise new corps in certain localities, reducing others where they are redundant. Any reductions which are desirable will be sure to meet with considerable local opposition, and it will be necessary for any scheme to be received favourably by the general body of Volunteers if it is to be successfully carried out. If the need for such a concentration is put fairly to the whole force and all corps reduced are treated in a fair and liberal spirit, there should be little difficulty in effecting the desired improvement.

In addition to the careful localisation of units, the training of the artillery and engineer units will be limited according to their duties in the coast fortress to which they are allotted. Thus one company of artillery would train almost exclusively with Q.F. guns, another with batteries of position, while the engineers will be similarly divided into electric light, submarine mining, or fortification units.

## CHAPTER VII.

### GENERAL ORGANISATION OF DISTRICTS AND COMMANDS IN THE UNITED KINGDOM.

The satisfactory working of any organisation depends very largely on the arrangements made for the command, supervision, and inspection of units during peace, and an essay of this description would not be complete without some reference to this division of the subject.

The general arrangement proposed follows the same lines as that now in force in Ireland, namely, large districts sub-divided into smaller executive commands. The depôts of each branch would be distributed according to recruiting facilities and the units allotted to each division or army corps grouped as far as possible in the same district.

As, however, I propose to have only four organised army corps, it is not possible to have the whole of one army corps in any district, as this, with the proportion of Volunteer and other units, would throw too much responsibility on one command. I have thus divided the whole of Great Britain and Ireland into eight districts, as shown in Appendix III.; these districts are then grouped in pairs, each pair containing as far as possible all the units of a complete army corps.

These districts are :—

#### I.—*Southern.*

Including the present Southern and Aldershot Districts. This would be the headquarters of 1st Army Corps and 1st Cavalry Division. District headquarters—Aldershot.

#### II.—*London.*

Including the present Home and Woolwich Districts, and the portions of London in Kent and Essex, also the counties included in the 16th and 35th Regimental Districts. This would be the headquarters of 2nd Army Corps. District headquarters—London.

#### III.—*Eastern.*

Comprising those portions of the existing Eastern, Thames, and South-Eastern Districts which are included in the 3rd, 9th, 12th, 44th, and 50th Regimental Districts. This would be the headquarters of 3rd Army Corps and 2nd Cavalry Division. District headquarters—Colchester.

#### IV.—*Ireland.*

As at present. Headquarters of 4th Army Corps and 3rd Cavalry Division. District headquarters—Dublin.



V.—*Western.*

As at present. Affiliated to No. 1 for supply of units to 1st Army Corps. District headquarters—Exeter.

VI.—*North-Western.*

As at present, with the addition of 48th Regimental District. Affiliated to No. IV. for supply of units to 4th Army Corps. District headquarters—Lichfield.

VII.—*North-Eastern.*

As at present. Affiliated to No. III. for supply of units to 3rd Army Corps. District headquarters—York.

VIII.—*Scottish.*

As at present. Affiliated to No. II. for supply of units to 2nd Army Corps. District headquarters—Edinburgh.

The sub-division of responsibility within each district will be under three heads :—

1. Coast fortresses.
2. Camps or garrison towns.
3. Sub-districts.

The duties and position of the commanders of coast fortresses have been already given in Chapter III., and need not be repeated here.

The second head should include nearly all the permanent units, these being grouped in centres suitable for instruction of all arms.

The third head comprises everything not included in the other two, each sub-district including two or three of the existing regimental districts and taking over many of the duties now performed in these latter.

The division of responsibility throughout each district would then be broadly on the following lines :—

Each would be commanded by a general or lieutenant-general, who would be responsible for the whole district; his principal duties would be the supervision and inspection of his various subsidiary commands, the distribution and movement of troops within the district, and the arrangements for mobilisation. He would have on his staff among others, inspecting officers for the Royal Artillery, Royal Engineers, Army Service Corps, and medical branches, also inspecting officers for musketry, gymnasia, and signalling.

His headquarters would for convenience be at or near the largest camp or garrison town, but should not be in a coast fortress.

Camps and garrison towns would be commanded by an officer of the rank of major-general or brigadier-general, who would be in actual command of all troops quartered in the garrison. He would have on his staff officers for Royal Artillery, Royal Engineers, Army Service Corps, medical, and ordnance duties, who would be also commanding officers in their respective branches. Militia units of the field army would often be moved into these camps or garrisons for their annual training.



The command of sub-districts would usually be vested in an officer of colonel's rank, whose principal duties would be the supervision of depôts and recruiting generally. He would also watch the formation and training of all Militia and Volunteer corps in his sub-district. He would keep the roster for promotion of non-commissioned officers of sergeant's rank and upwards in the case of units whose headquarters were located in his sub-district, and would also keep the foreign service roster for all ranks of these units. He would have officers on his staff for Royal Engineers, Army Service Corps, medical, and ordnance duties.

The ranks and positions of the staff officers would vary in all cases according to the duties to be done.

The command of each depôt would be carried out by a regimental lieut.-colonel, who would also command a Militia battalion, but otherwise his command would be limited to his own men.

Further details of the scheme will be seen on reference to Appendix III.

## CHAPTER VIII.

### CONDITIONS OF SERVICE AND MODE OF TRAINING.

There now remain to consider shortly some of the details connected with the conditions of service and the consequent strength of units, and their mode of training.

Many of these details have been already alluded to, and I propose to make this chapter rather a summary of results already arrived at, than a critical discussion of alternative methods.

To commence with the permanent forces, that is, those organised for service at home or abroad during peace, the period of army service must not be less than at present—eight years<sup>1</sup>—in all corps which have a large proportion of their strength abroad. This will allow of a first period of training and preparation at home averaging two and a half years, followed by five years abroad. This should be the normal, and no one of whatever rank should be exempted from this first tour.

I would then allow extensions of service as under :—

1. To nine years with the colours to all non-commissioned officers and men volunteering to complete six years abroad.
2. By successive periods of three years to non-commissioned officers and men volunteering to complete an additional period of three years abroad.

Both the above classes of extensions would be carried out abroad. At home non-commissioned officers and men who have not extended to at least nine years while abroad, but return in their eighth year of service, should not be allowed to extend their army service at all, the only exception being men who have been invalided home during their first period of foreign service.

<sup>1</sup> As all men would take a turn abroad, the present term of seven years becomes merely nominal, and eight years is the real period of enlistment.

Men who have completed six years abroad to be allowed to return home in their ninth year of service, or after any further period of three years, and those then wishing to continue in army service to be considered for extension on arrival home, subject to the strength of the home units, and to being recommended by their commanding officer from abroad. This extension to be by successive periods of three years. Pensions to be given as at present after eighteen and twenty-one years' service, and a gratuity or limited pension on the completion of fifteen years.

Non-commissioned officers required for a second tour abroad, which would probably come round about the thirteenth or fourteenth year of service, would be required to extend their service for the succeeding triennial period before embarkation.

Service in the reserve would be to complete twelve years' total service if the transfer to the reserve was at the end of eight or nine years' army service.

The above will hardly give a sufficient number of reservists to make up the establishment detailed in Appendix IV. To make up these numbers all reservists on completion of twelve years, and also all men leaving the Army at the end of twelve, fifteen, or eighteen years' service, should be encouraged to re-engage for successive periods of three years' service in section D of the reserve, subject to medical inspection and to satisfactory completion of twelve days' training before each further triennial period of reserve service. To encourage men to undertake this liability, gratuities might be given after fifteen, eighteen, or twenty-one years' service, graduated according to the proportion of their army and reserve service, unless it is found that the increased facilities for civil employment now offered by Government to reserve men offer sufficient attraction.

It is part of this scheme that all promotions to the rank of sergeant and upwards should be on one roster for the whole regiment, kept by the officers commanding the sub-district in which the regimental headquarters is situated.

Promotion to junior ranks to be by battalions, the balance to be kept by drafting as required.

The above should be the general arrangement in all corps with a good proportion of foreign service. In corps which form part of our coast fortress troops, as garrison artillery and engineers, non-commissioned officers and men should be encouraged to extend their service, as only a comparatively small reserve is required. In corps with only a small proportion of foreign service, as the Army Service Corps, Royal Army Medical Corps, and some branches of the Royal Engineers, a shorter period of army service of three to five years may be adopted, to be extended on embarkation for abroad and then to be on the same footing as others. Reserve service in these cases to be to complete twelve years in the first place and then by triennial increments as above.

It will be observed that I only propose to allow enlistment for three years' army service in certain special corps, and in view of the experiment

which is being made this year with this short term of enlistment, a few words in explanation seem necessary. The object of enlisting men for this short term is to attract more men to try the Army as a profession, in the hope that they may extend their service to seven or eight years and thus become liable for service abroad. If these hopes are realised, the conditions of service will be just the same as above, but it will require a very high proportion of these men to re-engage to make the experiment a success.

There is also a further point in this connection, which does not appear to have been met up to the present. Prior to this year the established strength of an infantry battalion at home was 801 all ranks, and this strength was found barely sufficient to supply the annual drafts for abroad, so that this year the strength was raised to 881. But if a proportion of the men in the ranks are serving for three years only and will not extend their service, the remainder of the battalion from which the drafts for service abroad have to be selected might easily be reduced below the original figure. This will be the case if only thirty of the men enlisted in each year for any two-battalion regiments serve for three years only. In order to make this experiment a success, it would appear necessary to make a further addition to the establishment of each battalion. Men enlisted for three years only help to swell the reserve at a much faster rate than those serving a longer time in the ranks; but if any increase in the reserve is considered necessary, the better and cheaper plan seems to be to extend section D of the reserve in the manner I have proposed above.

The great difficulty of our army administration is the foreign drafts, and if enlistment for three years is found to tempt men eventually to extend their service it is worth trying, but at least 90 per cent. should so extend.

The conditions of service are thus intimately connected with the strength of units, and here it seems necessary in the first place to try and get rid of the perfectly arbitrary check placed on our military organisation by the present Parliamentary method of voting the "strength" of the Army. As a matter of fact, the "strength" so voted is not as its name implies, a standard to which all units should endeavour to attain, but a maximum, the exceeding of which involves a breach of the British constitution.

It would appear that all necessary respect would be paid to our national constitution by the fixing of a maximum which would allow much greater margin to our military administrators, and the best figure to fix would seem to be the war strength of each unit; the bringing of any unit to war strength by the inclusion of reservists would then not stop recruiting, while the margin would be ample.

The real check by Parliament on the Army is the amount of money voted, and this is based not on the "maximum" but on the "average" strength during the year. Further, in addition to these two sets of figures we require to lay down a minimum effective strength for each unit below which it should not be allowed to fall at any time. This

minimum strength should be taken after deducting all men of less than one year's service and should be large enough to allow a percentage for sick and other casualties.

This minimum for an infantry battalion may be placed at 520 on a war strength of 1,000, but for cavalry and artillery it should be higher in proportion. Of the 520 men in an infantry battalion, 100 would be officers, drummers, and senior non-commissioned officers, 190 would be men in their second year of service, and 230 men who had been abroad and were serving on. In addition, there would be about 100 men in their first year of service, and just before the date for the annual foreign draft a further 180 in their third year of service, or a maximum peace total of 780 to 800 men. An average peace strength of 750 should prove ample.

Recruits for their first six months of service should be borne on the establishment of the *depôt*, and not on that of the home battalion as at present. They should be shown as recruits in all returns.

The permanent cadres of the Militia battalions should be about 100 all ranks for each battalion for the field army and 50 for each of the others, or a total of 150 for a two-battalion regiment. This with an average of 100 recruits under training would give 250 for a two-battalion *depôt* or 350 for a four-battalion *depôt*; there would be in addition the Militia recruits. The average peace strength of each arm is given in Appendix IV., and also the detailed peace strength of each unit. The totals, owing to the saving in Militia staff, are not very largely in excess of the present numbers in spite of the proposed increase in the numbers of units.

Service in the Militia would remain much as at present—six years, but with power of extension up to 18 years' service. The Militia reserve would die out, as the whole of the Militia being liable for general service abroad in any battalion of their regiment, all would be part of a true reserve.

The maximum strength of the Militia portion of the Militia battalions, excluding the permanent cadre at the *depôt*, should be about 800 all ranks for the battalion for general service and about 650 all ranks for other battalions.

For the Volunteers I would retain the present organisation, while increasing the conditions necessary for efficiency. Those detailed for the first portion of the auxiliary garrisons should be required to do an annual training of twelve days in the actual garrison or fortress to which they are detailed on mobilisation. This extra training should entitle them to a higher capitation grant of double the present amount. Arrangements should also be made to give such financial assistance to the regimental funds as will provide for all legitimate expenditure; but, on the other hand, it is unnecessary to supply a force intended mainly for service in coast fortresses with the marching equipment desirable for an army in the field.

It would be advantageous to make the status of the Volunteers more nearly akin to that of the Militia. The officers might be made subject to military law at all times, and when permanently out for training or courses of instruction should receive the pay of their rank. The junior

ranks should be similarly treated—in short, this service should become more of a local Militia.

So far, except in the provisions for increasing the reserve, I have not departed very far from our present service arrangements, but in the matter of training I think there are several improvements possible.

It can hardly be too often repeated that the first duty of the home army is to act as a training school, feeding either battalions abroad or the reserve, and to enable this to be done properly some alterations should be made in our present system of training.

The most important appears to be the giving of a freer hand to regimental commanding officers and to regimental company officers, and to do this it is necessary to reduce very largely the number of employed men in garrisons and the number of garrison fatigues. Abroad where the garrisons are at war strength, and are composed of more or less seasoned soldiers, who should all be well grounded in their military duties, there is less objection to the supply of infantry working parties for various duties; regimental or garrison workshops should flourish, and sport and amusements be encouraged in every way; but during a man's first two or three years of service he should be fully employed in learning his profession, and while all active games and amusements should be encouraged, he should not be taken away to load stores at the gun-wharf, to wash out the gymnasium, or to weed the roads at the station hospital. To perform such duties in garrisons at home a special corps of barrack labourers should be formed at each station under the Army Service Corps officer for barracks, they should be selected from reserve non-commissioned officers and men of good character, and be allowed to marry and to live in their own homes, receiving the pay of an ordinary labourer in civil life. This would involve considerable economy, as with civilians or reservists a smaller number would suffice than if soldiers were employed.

I would not extend this system to the regimental unit, as it is important to keep each unit self-supporting; cooks and cooks' mates, tailors and shoemakers, will all be required in war-time, and should practise their duties in peace; but servants and waiters in officers' or non-commissioned officers' messes should not be drawn from the ranks. It would be much better to pay a fixed allowance, and for each officer or mess to make their own arrangements, but this allowance must be a real one, and not a nominal sum as at present; a soldier costs the country over twenty-one shillings a week, and at least this sum should be paid for each civilian or reservist employed in lieu of a soldier.

Another important point in connection with the training of all ranks is the arrangement for leave or furlough; this is, of course, a privilege not a right; but just as in all other educational establishments it is found desirable to have regular intervals for rest and recreation, so instruction throughout the Army would greatly benefit by a fixed period of rest.

At present we have a so-called leave-season, but this extends over far too long a period, making it necessary to continue instruction and training during the period of leave, and also only a limited number are allowed to be on leave at a time. It would probably be impossible to



spread the military vacations over two or three periods of the year, as the summer is necessarily required for manœuvres, but I see no reason why at home from the 15th December to the 31st January in each year there should not be a real furlough period with a total suspension of military training, only sufficient men to be kept in barracks to find guards and to take charge of Government property. The period selected includes the great annual holiday of Christmas and the New Year, and is also a time of year little adapted to outdoor exercises.

Another point where improvement seems desirable is the number of officers and men now away for special courses of instruction, musketry, mounted infantry, signalling, and others. These special classes with a proper regimental system of instruction should be much reduced, while I would form separate corps for mounted infantry, signalling, or cyclist work, filling them permanently by volunteers from other corps who had completed, or nearly completed, their first period of service abroad. A commanding officer would not then, on mobilisation, find his whole organisation upset by demands for these special services.

With these provisos, the training of an infantry soldier would proceed on the following lines :—

It would commence by a recruit's course of six months' duration at the dépôt, which should include a careful musketry course mostly of individual firing. After this a recruit should be drafted to the home battalion, where he should be put through a young soldier's course of about twelve months' duration (including annual furlough) under his company officers. This course should be arranged as a sequel to his recruit's course and would be in two parts : for the first half he would be available only for work in the company including a course of field works and a company musketry course, for the second part he would drill with the battalion, but not be available for garrison duties. After the first year he would be available for all duties, but would continue his training in battalion duties, including field firing.

To ensure a regular system in this course and an even flow of recruits from the dépôt at regular two-monthly periods, each batch going to one company; each company in an eight-company battalion would then get a batch of young soldiers every 16 months, and would have them under instruction for 12 months with a four-month interval between batches. During the 12 months' instruction every effort should be made to keep officers and non-commissioned officers with their men, they should be largely excused garrison duties, and except during annual furlough, leave should be restricted to urgent cases; in short, every effort should be made to make the course of instruction of the young soldier systematic and continuous. The details of the course would vary a little with the time of year, but this should present no difficulty. During the interval between the completion of one batch and the commencement of the next a reasonable amount of leave might be allowed to officers and non-commissioned officers of the company, or they might attend special courses in the garrison and be available for garrison duties.



Some such scheme might also be applied to other units and corps than the infantry, and I see no reason why it should cause any special hardship to individuals, while it should certainly increase the standard of training.

The training of the Militia should proceed much as at present, though I should like to see the training of the Militia recruit made the same as that of the Line—six months. This with an annual training of from 28 to 56 days should provide an excellent fighting force.

The annual training of Militia should be by battalions or brigades, and every third or fourth year, but not oftener, each unit should take its place in an army corps or large body of troops for combined manœuvres.

The reserve men who train at their triennial period should be attached for training to one of the Militia battalions of the regiment.

The Volunteers should be encouraged to train, if only for a few days, at their station on mobilisation; and to assist this, corps should be detailed to stations as near their headquarters as possible. This annual training would be essential for the units forming part of the first auxiliary garrison. Otherwise the system of training should remain as elastic as possible.

## CHAPTER IX.

### CONCLUSION.

In presenting the details discussed in the last few chapters for consideration, I feel that I am rather complying with the wishes of the Council of the Institution as implied by the wording of the subject of this essay, than bringing forward anything which can claim to be conspicuously novel or an obvious improvement on existing conditions.

The feeling which I have on the subject of Home Defence and which has been intensified by the detailed consideration requisite to the construction of this essay, is that we are still rather in the dark as to the nature of defence required, and have allowed our military organisation to grow irregularly and, as it were, by accident, instead of first laying down definite principles of action and then adapting our organisation accordingly.

The principles involved which I have endeavoured to discuss in the second chapter obviously rule all minor factors, and thus I desire to present the suggestions as to details of organisation, conditions of service and training rather as showing that a practical and consistent system can be built on the foundation I have laid down, than as the only, or even the best, solution of the difficult problems under discussion.

The same reason must be my excuse for occasionally discussing details which affect the defence of India or our Colonies, as the principles involved in Home Defence cannot be considered apart from the whole question of Imperial Defence; in fact, the place the home army takes in Imperial Defence is the very first point to be settled.

In conclusion, I would offer one further observation. "Preparing is preventing," says an old proverb, and nowhere is this more true than in

military matters ; the best way of obtaining peace is to be prepared for war ; but this preparation must be a real and not a paper one, and can only be carried out by the loyal support of all ranks and branches of the Army in hearty co-operation with our sister Service the Navy. This support and co-operation may involve the suppression of our personal feelings, and the surrender of our most cherished convictions, but our reward will be the safety of our families and homes, and all else that is implied in the existence of the British Empire.

P.S.—This essay was completed and typed before "War Establishments," 1898, was issued to stations. The figures given in the essay are thus not always quite in agreement with recent regulations, notably in the number of cavalry regiments allotted to each army corps and in the provision of field hospitals, but the organisation proposed would readily admit of the additional units required being raised from the Militia. The principle on which the War Establishments are based, that the organisation of the Army for service at home is included in the organisation for service abroad, is the principle advocated in this essay, and forms the basis of the proposals I have put forward. In other details, such as the formation of a reserve or *depôt* squadron for each cavalry regiment, the new organisation also approaches more closely that of the essay, and I see no reason to modify any of the views I have put forward.

## APPENDIX I.

*Summary of Garrisons of Coast Fortresses, showing the various Arms and the Reserves necessary for each.*

| Branch of the Service.                                      | Perma-<br>nent Gar-<br>risons. | 1st Auxil-<br>iary<br>Garrison | 2nd Auxil-<br>iary<br>Garrison. | Reserve<br>required<br>to com-<br>plete<br>Peace Es-<br>tablish-<br>ments. | Reserve required to<br>replace waste. |                                  |
|---|--------------------------------|--------------------------------|---------------------------------|--|---------------------------------------|----------------------------------|
|   |                                |                                |                                 |  | In Per-<br>manent<br>units.           | In 1st<br>Auxiliary<br>Garrison. |
| <i>Cavalry.</i>   | —                              | —                              | 2,000                           | —  | —                                     | —                                |
| <i>Artillery.</i>   |                                |                                |                                 |  |                                       |                                  |
| Coast Fortress Com-<br>panies }                             | 8,000                          | 7,000                          | 5,000                           | —  | —                                     | —                                |
| Position Artillery and<br>Movable Armament }                | 500                            | 3,000                          | 4,000                           | —  | —                                     | —                                |
| Land Defences ...   | 500                            | —                              | 6,000                           | —  | —                                     | —                                |
|   | 9,000                          | 10,000                         | 15,000                          | 1,000  | 2,500                                 | 2,500                            |
| <i>Engineers.</i>   |                                |                                |                                 |  |                                       |                                  |
| Electric Lights,<br>Submarine Mines,<br>and Torpedoes ... } | 1,500                          | 500<br>2,000                   | —                               | —  | —                                     | —                                |
| Fortress Work and<br>other details ... }                    | 500                            | 2,500                          | 4,000                           | —  | —                                     | —                                |
|   | 2,000                          | 5,000                          | 4,000                           | 200  | 550                                   | 1,200                            |
| <i>Infantry.</i>  |                                |                                |                                 |  |                                       |                                  |
| 14 Battalions ...   | 8,400                          | 30,000                         | 60,000                          | 5,600  | 3,500                                 | 7,500                            |
| <i>Staff and Departments.</i>                               | 1,600                          | 4,000                          | 7,000                           | 900  | 650                                   | 1,000                            |
| <i>Totals ...</i>   | 21,000                         | 49,000                         | 88,000                          | 7,700  | 7,200                                 | 12,200                           |
| <i>Grand Total...</i>                                       | 158,000                        |                                |                                 | 27,100   |                                       |                                  |

## APPENDIX II.

*Table showing the Strength of the various Arms required for Home Defence or Service Abroad, excluding the Garrisons of Coast Fortresses :—*

| Branch of Service. | Units of General Service Army available for Home Defence or Active Service Abroad. |                          |   | Units available for Home Defence used as a Reserve for the Field Army Abroad. |                    |                            |
|--------------------|--|--------------------------|---|---|--------------------|----------------------------|
|                    | No. of Units.  | Total Strength.          | How allotted.   | No. of Units.   | Total Strength     | How allotted.              |
| <i>Cavalry.</i>    | 18<br>4<br>5   | 10,800<br>2,400<br>3,000 | 3 Cavalry Divisions.<br>4 Army Corps.<br>Lines of Communications and un-<br>allotted. | 4<br><br>4  | 2,400<br><br>5,600 | Home Defence<br><br>Depôts |
|                    | 27   | 16,200                   |   | 8   | 8,000              |                            |
| <i>Artillery.</i>  |  |                          |   |   |                    |                            |
| Horse batteries {  | 6<br>12<br>36  | 1,050<br>2,100<br>6,300  | 6 Cavalry Brigades.<br>4 Army Corps.<br>Divisional Artillery, 4 Army Corps.           | 15  | 2,250              | Field batts. {             |
| Field batteries {  | 36<br>6  | 6,300<br>1,050           | Corps Artillery, 4 Army Corps.<br>Lines of Communi-<br>cations and un-<br>allotted.   | 30  | 4,500              | Position batts. {          |
| Ammunition Cols. { | 16<br>3  | 3,200<br>600             | With Infantry Corps.<br>With Cavalry Corps.   | 10  | 3,250              | Depôts and sub-<br>depôts  |
|                    | 115  | 20,600                   |   | 55  | 10,000             |                            |
| <i>Engineers.</i>  |  |                          |   |   |                    |                            |
| Mounted unit ...   | 3  | 360                      | 3 Cavalry Divisions.  |   |                    |                            |
| Pontoon „ ...      | 4  | 800                      |   |   |                    |                            |
| Telegraph,, ...    | 4  | 1,000                    |   | 18  | 2,700              | General Service            |
| Balloon „ ...      | 4  | 200                      | 4 Army Corps.   |   |                    | Companies                  |
| Field Company ...  | 16   | 3,200                    |   | 3   | 1,300              | Depôts                     |
| Field Park ...     | 4  | 200                      |   |   |                    |                            |
| Railway Company    | 4  | 640                      | Lines of Communi-<br>cations and un-<br>allotted.                                     |   |                    |                            |
| G. S. Company ...  | 12   | 1,500                    |   |   |                    |                            |
|                    | 51   | 7,900                    |   | 21  | 4,000              |                            |
| <i>Infantry.</i>   |  |                          |   |   |                    |                            |
| Mounted ...        | 3  | 3,000                    | 3 Cavalry Divisions.  | 1   | 1,500              | Depôt Mounted Inf.         |
| Foot Guards ...    | 3  | 3,000                    | 4 Army Corps.   | 3   | 4,500              | Guards and Depôt.          |
| Line Bns. ...      | 97<br>21   | 97,000<br>21,000         | Lines of Communi-<br>cations and un-<br>allotted.                                     | 54  | 56,000             | Depôt bns.                 |
|                    | 124  | 124,000                  |   | 58  | 62,000             |                            |

APPENDIX II.—*Continued.*

| Branch of Service.                     | Units of General Service Army<br>available for Home Defence or<br>Active Service Abroad. |                    |  | Units available for Home Defence<br>used as a Reserve for the Field<br>Army Abroad. |                    |   |
|--|--|--------------------|--|---|--------------------|---|
|  | No. of<br>Units.   | Total<br>Strength. | How allotted.  | No. of<br>Units.  | Total<br>Strength. | How allotted.                             |
| <i>Army Service Corps.</i>             | 44   | 6,400              | 4 Army Corps.  | 20  | 3,000              | Companies for Home<br>Defence.<br>Depôts. |
|  | 12   | 2,100              | 3 Cavalry Divisions.   |   |                    |   |
|  | 12   | 2,500              | Unallotted.  | 5   | 2,000              |   |
|  | 68   | 11,000             |  | 25  | 5,000              |   |
| <i>Royal Army Medical<br/>Corps.</i>   |  |                    |  |   |                    |   |
| Bearer Company...                      | 30   | 1,920              | { 6 per Army Corps,<br>2 per Cavalry<br>Division.<br>3 per Army Corps,<br>1 per Cavalry<br>Division. | 20  | 2,000              | Units at Depôts.                          |
| Field Hospital ...                     | 15   | 680                |  |   |                    |   |
| G. S. Company ...                      | 10   | 1,400              |  |   |                    |   |
|  | 55   | 4,000              | Unallotted.  | 20  | 2,000              |   |
| <i>Staff &amp; Miscellaneous.</i>      | —  | 2,300              |  | —   | 1,000              |   |
| Total available for<br>Home Defence... | —  | 186,000            |  | —   | 92,000             |   |
|  |  | 278,000            |  |   |                    |   |
| Add from Coast<br>Fortresses }         | —  | 15,000             |  | —   | 8,000              |   |
| Available for Ser-<br>vice Abroad }    | —  | 201,000            |  | —   | 100,000            |   |
|  |  | 301,000            |  |   |                    |   |

## APPENDIX

*Organisation of Districts, showing Subordinate*

| No. of District. | Name of District and Headquarters. | Subordinate Commands.                              |  |  |
|------------------|------------------------------------|--|--|--|
|                  |                                    | Coast Fortresses.                                  | Standing Camps or Garrison Towns.                | Sub-districts with numbers referring to present Regimental Districts.                |
| I.               | <i>Southern.</i><br>Aldershot      | 1. Portsmouth and Isle of Wight<br>2. Weymouth     | 1. Aldershot<br>2. Salisbury Plain               | 1. Winchester (67 and Rifle Depôt)<br>2. Dorchester (39 and 62)                      |
| II.              | <i>London.</i><br><br>London       | None   | 1. London<br>2. Caterham                         | 1. Guildford (2, 31, and 35)<br>2. Hounslow (7 and 57)<br>3. Oxford (16, 43, and 49) |
| III.             | <i>Eastern.</i><br>Colchester      | 1. Dover<br>2. Thames & Medway<br>3. Harwich       | 1. Colchester<br>2. Canterbury<br>3. Shorncliffe | 1. Maidstone (3 and 50)<br>2. Bury St. Edmunds (9, 12, and 44)                       |
| IV.              | <i>Ireland.</i><br>Dublin          | 1. Cork Harbour<br>2. Berehaven<br>3. Lough Swilly | 1. Dublin<br>2. Curragh<br>3. Cork<br>4. Belfast | 1. Armagh (27, 83, and 87)<br>2. Birr (88, 160, and 102)<br>3. Clonmel (18 and 101)  |



## DIX III.

*Commands, and the Troops allotted to each.*

| Troops of Field Army allotted to each District, excluding Troops in Coast Fortresses and Unallotted Units. |   |  |  |                        | Remarks.  |
|--|---|--|--|------------------------|---|
| Cavalry.   | Artillery.  | Engineers  | Infantry.  | Miscellaneous.         |   |
| 2nd Cav. Brig.<br>1 Reg. for 1st A.C.  | 1 Batt. H.A. for Cav. Brig.<br>3 Batt. H.A. } Corps Art. for 1st A.C.<br>9 Batt. F.A. 1st Div.<br>3 Batt. F.A. 1st A.C.<br>4 Ammunition Cols.       | Corps details and 3 Field Cos. for 1st A.C.<br>Balloon Company | 1st, 2nd, 3rd, 4th, and 5th Inf. Brg.<br>1 Bn. Cp. Inf. 1st A.C.<br>1 Md. Inf. Bn. 1st Cav. Div. | Corps details 1st A.C. | Headquarters 1st Army Corps. Remainder of Corps in No. V. Western District. New Camp to be formed on Salisbury Plain. |
| 1st Cav. Brig.<br>1 Reg. (Mila.) for 2nd A.C.  | 1 Batt. H.A. for Cav.<br>3 Batt. H.A. } Corps Art. for 2nd A.C.<br>9 Batt. F.A. 2nd A.C.<br>9 Batt. F.A. (Mila.) for 2nd A.C.<br>3 Ammunition Cols. | Telegraph unit for 2nd A.C.<br>Mila Bn for 2nd A.C.            | 7th, 8th (Mila.) & 9th Brg.<br>1 Bn. Cp. Inf. 2nd A.C.   | Corps details 2nd A.C. | Headquarters of 2nd Army Corps. Remainder of Corps in No. VIII. Scottish District. New Camp at Caterham.              |
| 3rd Cav. Brig.<br>1 Reg. (Mila.) for 3rd A.C.  | 1 Batt. H.A. for Cav.<br>3 Batt. H.A. } Corps Art. for 3rd A.C.<br>6 Batt. F.A. 3rd A.C.<br>3 Batt. F.A. (Mila.) for 3rd A.C.<br>3 Ammunition Cols. | Telegraph unit for 3rd A.C.<br>Mila Bn for 3rd A.C.            | 13th, 14th (Mila.) & 15th Bg.<br>1 Bn. Cp. Inf. 3rd A.C.<br>1 Md. Inf. Bn. 2nd Cav. Div.         | Corps details 3rd A.C. | Headquarters of 3rd Army Corps. Remainder of Corps in No. VII. North-Eastern District.                                |
| 5th & 6th Cav. Brig.<br>1 Regt. (Mila.) for 4th A.C.   | 2 Batt. H.A. for Cav.<br>3 Batt. H.A. } Corps Art. for 4th A.C.<br>6 Batt. F.A. 4th A.C.<br>3 Batt. F.A. (Mila.) for 4th A.C.<br>2 Ammunition Cols. | Telegraph unit for 4th A.C.<br>Mila Bn for 4th A.C.            | 19th, 20th (Mila.), 21st & 23rd Bg.<br>1 Bn. Cp. Inf. 4th A.C.<br>1 Md. Inf. Bn. 3rd Cav. Div.   | Corps details 4th A.C. | Headquarters of 4th Army Corps. Remainder of Corps in No. VI. North-Western District.                                 |

## APPEN

| No. of District. | Name of District and Headquarters. | Subordinate Commands.  |  |   |
|------------------|------------------------------------|--|--|---|
|                  |                                    | Coast Fortresses.  | Standing Camps or Garrison Towns.      | Sub-districts with numbers referring to present Regimental Districts.   |
| V.               | <i>Western.</i><br>Exeter.         | 1. Plymouth<br>2. Falmouth<br>3. Cardiff<br>4. Pembroke Dock | 1. Exeter<br>2. Okehampton             | 1. Exeter (11, 13, and 32)<br>2. Cardiff (24, 28, and 43)   |
| VI.              | <i>North-Western.</i><br>Lichfield | 1. Liverpool   | 1. Lichfield                           | 1. Lancaster (4, 34, and 47)<br>2. Bury (20, 30, and 63)<br>3. Warrington (8 and 40)<br>4. Chester (22, 23, and 53)<br>5. Lichfield (29, 38, and 64)<br>6. Warwick (6 and 48) |
| VII.             | <i>North-Eastern.</i><br>York      | 1. Humber<br>2. Tees<br>3. Tyne                              | 1. York<br>2. Strensall                | 1. Newcastle (5 and 68)<br>2. York (14, 15, and 19)<br>3. Pontefract (33, 51, and 65)<br>4. Derby (10, 17, and 45)  |
| VIII.            | <i>Scottish.</i><br>Edinburgh      | 1. Leith<br>2. Dundee<br>3. Greenock                         | 1. Edinburgh<br>2. Glasgow<br>3. Perth | 1. Inverness (72, 75, and 79)<br>2. Perth (42 and 91)<br>3. Edinburgh (1 and 25)<br>4. Hamilton (21, 26, and 71)  |

DIX III.—*Continued.*

| Troops of Field Army allotted to each District, excluding<br>Troops in Coast Fortresses and Unallotted Units. |   |            |   |   | Remarks.  |
|---|---|------------|---|---|---|
| Cavalry.  | Artillery.  | Engineers. | Infantry.   | Miscellaneous.                                  |   |
|   | 6 Batt. F.A. for 1st<br>A.C.<br>1 Amm. Col. 1st A.C.  |            | 6th Inf.<br>Brig.                                       | Medical<br>and<br>A.S.C.<br>details<br>1st A.C. | New Camp at Exeter<br>Officer commanding<br>Cardiff Sub-district<br>also commands<br>Cardiff Fortress.  |
|   | 6 Batt. F.A. (Mila.) for<br>4th A.C.<br>3 Amm. Cols. 4th A.C.                                 |            | 22nd<br>(Mila.) &<br>24th<br>(Mila.)<br>Brig.           | Medical<br>and<br>A.S.C.<br>details<br>4th A.C. | New Camp at Lichfield.<br>Officer commanding<br>Warrington Sub-district<br>also commands<br>Liverpool Fortress.   |
| 4th Cav.<br>Brig.   | 1 Batt. H.A. for Cav.<br>3 Batt. F.A. for 3rd<br>A.C.<br>6 Batt. F.A. (Mila.) for<br>3rd A.C. |            | 16th<br>(Mila.),<br>17th, &<br>18th<br>(Mila.)<br>Brig. | Medical<br>and<br>A.S.C.<br>details<br>3rd A.C. | Officer commanding<br>Newcastle Sub-district<br>also commands<br>Tyne Fortress.   |
|   |   |            | 10th<br>(Mila.),<br>11th, &<br>12th<br>(Mila.)<br>Brig. | Medical<br>and<br>A.S.C.<br>details<br>2nd A.C. | Officer commanding<br>Edinburgh commands<br>fortress and Sub-district,<br>Officer commanding<br>Glasgow commands<br>Greenock Fortress.<br>Officer commanding<br>Perth Garrison<br>commands Perth<br>Sub-district. |

## APPENDIX IV.

*Peace Strength of Units at Home required to provide the numbers given in Appendices I. and II.*

*The figures given are the Average Strength, not the Maximum.*

| Branch of the Service.                      | Permanent Forces (Table A). |                        |          |                  |          | 1st Class Army Reserve (Table B) |
|---|-----------------------------|------------------------|----------|------------------|----------|----------------------------------|
|   | No of Units.                | Strength of each Unit. |          | Total Strength.  |          | Total strength                   |
|   |                             | Trained Soldiers       | Recruits | Trained Soldiers | Recruits |                                  |
| <i>Cavalry.</i>                             |                             |                        |          |                  |          |                                  |
| Household Cavalry ...                       | 3                           | 380                    | —        | 1,140            | —        | —                                |
| Depôt for Household Cavalry ...             | 1                           | 60                     | 80       | 60               | 80       | —                                |
| Regiments of the Line ...                   | 8                           | 600                    | —        | 4,800            | —        | 6,500                            |
| Regiments of the Line ...                   | 11                          | 500                    | —        | 5,500            | —        | —                                |
| Depôt for Line Regiments ...                | 1                           | 300                    | 500      | 300              | 500      | —                                |
| Depôt for Line Regiments ...                | 3                           | 180                    | 350      | 540              | 1,050    | —                                |
| Total Cavalry ...                           | —                           | —                      | —        | 12,340           | 1,630    | 6,500                            |
| <i>Horse and Field Artillery.</i>           |                             |                        |          |                  |          |                                  |
| Horse Batteries ...                         | 9                           | 160                    | —        | 1,440            | —        | 1,000                            |
| Horse Batteries ...                         | 9                           | 150                    | —        | 1,350            | —        | —                                |
| Depôt for Horse Artillery ...               | 2                           | 100                    | 80       | 200              | 160      | —                                |
| Field Batteries ...                         | 18                          | 160                    | —        | 2,880            | —        | —                                |
| Field Batteries ...                         | 30                          | 140                    | —        | 4,200            | —        | —                                |
| Depôts for Field Artillery ...              | 5                           | 260                    | 120      | 1,300            | 600      | 6,000                            |
| Sub-depôts... ..                            | 5                           | 200                    | 80       | 1,000            | 400      | —                                |
| Staff for Horse and Field Artillery ...     | —                           | —                      | —        | 120              | —        | —                                |
| Total Horse and Field Artillery ...         | —                           | —                      | —        | 12,490           | 1,160    | 7,000                            |
| <i>Coast Fortress Artillery.</i>            |                             |                        |          |                  |          |                                  |
| Service Companies ...                       | 41                          | various                | —        | 7,600            | —        | 3,000                            |
| Depôts ... ..                               | 6                           | various                | —        | 600              | 1,200    | —                                |
| Staff for Coast Defences ...                | —                           | —                      | —        | 400              | —        | —                                |
| Staff for Volunteer Units ...               | —                           | —                      | —        | 600              | —        | —                                |
| Total Coast Fortress Artillery ...          | —                           | —                      | —        | 9,200            | 1,200    | 3,000                            |
| <i>Engineers.</i>                           |                             |                        |          |                  |          |                                  |
| <i>Field Units.</i>                         |                             |                        |          |                  |          |                                  |
| Mounted Companies ...                       | 3                           | 80                     | —        | 240              | —        | 2,000                            |
| Telegraph Units ...                         | 1                           | 180                    | —        | 180              | —        | —                                |
| Telegraph Units ...                         | 3                           | 120                    | —        | 360              | —        | —                                |
| Bridging Troops ...                         | 1                           | 100                    | 30       | 100              | 30       | —                                |
| Field Companies ...                         | 4                           | 180                    | —        | 720              | —        | —                                |
| Depôt for Mounted Companies and Drivers ... | 1                           | 50                     | 80       | 50               | 80       | —                                |
| Depôts for Field Units ...                  | 3                           | 320                    | 100      | 960              | 300      | —                                |
| Railway Battalion and Depôt ...             | 1                           | 140                    | 30       | 140              | 30       | —                                |
| Staff Field Units ...                       | —                           | —                      | —        | 150              | —        | —                                |

APPENDIX IV.—*Continued.*

| Branch of the Service.                            | Permanent Forces (Table A). |                           |          |                     |          | 1st Class<br>Army<br>Reserve<br>(Table B) |
|---|-----------------------------|---------------------------|----------|---------------------|----------|---|
|   | No. of<br>Units.            | Strength of<br>each Unit. |          | Total Strength.     |          | Total<br>strength                         |
|   |                             | Trained<br>Soldiers       | Recruits | Trained<br>Soldiers | Recruits |   |
| <i>Engineers.</i>                                 |                             |                           |          |                     |          |   |
| <i>Coast Fortress Units.</i>                      |                             |                           |          |                     |          |   |
| Companies ... ..                                  | 21                          | various                   | —        | 1,200               | —        | 800                                       |
| Depôts ... ..                                     | 3                           | 160                       | 100      | 480                 | 300      |   |
| Staff Coast Fortress Duties                       | —                           | —                         | —        | 150                 | —        |   |
| Staff for Volunteer Units                         | —                           | —                         | —        | 200                 | —        |   |
| <i>Survey Companies</i> ... ..                    | 4                           | 110                       | —        | 440                 | —        | —   |
| <b>Total Engineers</b> ... ..                     | —                           | —                         | —        | 5,370               | 740      | 2,800                                     |
| <i>Infantry.</i>                                  |                             |                           |          |                     |          |   |
| Mounted Battalions ... ..                         | 3                           | 800                       | —        | 2,400               | —        | 1,500                                     |
| Depôt for Mounted<br>Battalions ... ..            | 1                           | 200                       | 500      | 200                 | 500      |   |
| Foot Guards ... ..                                | 6                           | 750                       | —        | 4,500               | —        | 2,500                                     |
| Depôt for Guards ... ..                           | 1                           | 400                       | 600      | 400                 | 600      |   |
| Line Battalions ... ..                            | 78                          | 750                       | —        | 58,500              | —        | 46,000                                    |
| Depôt 8 Battalions ... ..                         | 1                           | 250                       | 400      | 250                 | 400      |   |
| " 4 " ... ..                                      | 21                          | 200                       | 200      | 4,200               | 4,200    |   |
| " 2 " ... ..                                      | 32                          | 150                       | 100      | 4,800               | 3,200    |   |
| <b>Total Infantry</b> ... ..                      | —                           | —                         | —        | 75,250              | 8,900    | 50,000                                    |
| <i>Army Service Corps.</i>                        |                             |                           |          |                     |          |   |
| Companies ... ..                                  | 15                          | 100                       | —        | 1,500               | —        | 3,000                                     |
| " ... ..  | 23                          | 60                        | —        | 1,800               | —        |   |
| Staff and Detachments }<br>for Coast Fortresses } | —                           | —                         | —        | 600                 | —        | 3,000                                     |
| Depôts and Sub-Depôts ...                         | 10                          | 100                       | 30       | 1,000               | 300      |   |
| <b>Total Army Service Corps.</b>                  | —                           | —                         | —        | 4,900               | 300      | 3,000                                     |
| <i>Medical Corps.</i>                             |                             |                           |          |                     |          |   |
| Companies ... ..                                  | 15                          | 120                       | —        | 1,800               | —        | 1,700                                     |
| Depôts ... ..                                     | 3                           | 100                       | 60       | 300                 | 180      |   |
| <b>Total Medical Corps</b> ... ..                 | —                           | —                         | —        | 2,100               | 180      | 1,700                                     |
| <i>Staff and Miscellaneous</i> ... ..             | —                           | —                         | —        | 3,000               | —        | 800                                       |
| <b>Grand Total of Home Army.</b>                  | —                           | —                         | —        | 124,230             | 14,110   | 74,800                                    |

APPENDIX IV.—*Continued.*

| Branch of the Service.                          | Strength of Militia (Table C). |                        |          |                       | Remarks.                              |
|---|--------------------------------|------------------------|----------|-----------------------|---------------------------------------|
|   | No. of Units.                  | Strength of each Unit. |          | Total of Militia only |                                       |
|   |                                | Permt. Cadre.          | Militia. |                       |                                       |
| <i>Cavalry</i> Regiments .. ...                 | 5                              | (120)                  | 600      | 3,000                 | Permanent cadres included in Table A. |
| " .. ...  | 4                              | (60)                   | 500      | 2,000                 |                                       |
| Total Cavalry .. ...                            | —                              | —                      | —        | 5,000                 |                                       |
| <i>Field Artillery.</i>                         |                                |                        |          |                       |                                       |
| Field Batteries .. ...                          | 30                             | (40)                   | 140      | 4,200                 |                                       |
| " .. ...  | 15                             | (20)                   | 100      | 1,500                 |                                       |
| Position Batteries... ..                        | 30                             | (20)                   | 100      | 3,000                 |                                       |
| Ammunition Columns .. ...                       | 19                             | (10)                   | 150      | 2,850                 |                                       |
| Total Artillery .. ...                          | —                              | —                      | —        | 11,550                |                                       |
| <i>Engineers.</i>                               |                                |                        |          |                       |                                       |
| Field Battalions .. ...                         | 3                              | (120)                  | 1,000    | 3,000                 | 8 Cos. in each<br>"      "            |
| General Service Battalions                      | 3                              | (200)                  | 1,000    | 3,000                 |                                       |
| Railway Battalion .. ...                        | 1                              | (140)                  | 600      | 600                   |                                       |
| Total Engineers .. ...                          | —                              | —                      | —        | 6,600                 |                                       |
| <i>Infantry.</i>                                |                                |                        |          |                       |                                       |
| Battalions .. ...                               | 54                             | (100)                  | 800      | 43,200                |                                       |
| " .. ...  | 54                             | (50)                   | 650      | 35,100                |                                       |
| Total Infantry .. ...                           | —                              | —                      | —        | 78,300                |                                       |
| <i>Army Service Corps.</i>                      |                                |                        |          |                       |                                       |
| Battalions .. ...                               | 10                             | (100)                  | 1,000    | 10,000                | 6 Cos. in each                        |
| <i>Royal Army Medical Corps.</i>                |                                |                        |          |                       |                                       |
| Companies .. ...                                | 30                             | (100)                  | 120      | 3,600                 |                                       |
| <i>Miscellaneous, Cyclist and Signalling...</i> |                                |                        |          |                       |                                       |
| " .. ...  | 4                              | (50)                   | 250      | 1,000                 |                                       |
| Grand Total Militia ... ..                      | —                              | —                      | —        | 116,050               |                                       |



## LIST OF BOOKS CONSULTED.

---

Naval Warfare—*Colomb.*

Navy and the Nation—*Colomb.*

Navy and Imperial Defence—*Clarke and Thursfield.*

Articles in *United Service Magazine*, and others, by Sir C. Dilke,  
Admiral Colomb, Sir G. Clarke, Mr. S. Wilkinson, and others.

Brassey's Naval Annual.

Imperial Defence—*Sir G. Clarke.*

Army Book of the British Empire.

General Annual Return of the British Army for 1896.

Army Estimates for 1898-9.

Mobilisation Regulations for Home Defence, and details.

Field Army Establishments, Home and Abroad.

Queen's Regulations for the Army, and other military regulations.

*Journals* of Royal United Service Institution.

## THE LESSONS OF THE SPANISH-AMERICAN WAR.

By *Vice-Admiral P. H. COLOMB.*

---

Wednesday, March 8th, 1899.

Rear-Admiral A. K. WILSON, V.C., C.B., Controller of the Navy,  
in the Chair.

---

NOT long after the conclusion of the war, a copy of the *New York Herald* was sent to me, in which there was an account of an interview with Admiral Sampson. The interviewer represented himself as remarking that Admiral Colomb had said that there were no lessons to be drawn from the war; to which Admiral Sampson replied by saying:—"If Colomb says that, he does not know what he is talking about." I think this was a very reasonable and proper answer to give to such a statement; but I suppose it could not have been made exactly in that way. It is no doubt a fact that no naval war can possibly take place without offering lessons of some kind, and the only question is whether the lessons to be drawn are new ones—either bringing forward new data, or upsetting opinions formerly held, or merely confirming the lessons which could be, and were, drawn from previous wars.

My general view of the lessons of the war is, I think, commonly held by British students of such things, namely, that the facts and succession of facts in the war are almost in every case confirmatory of what we knew before, and that no competent critic found himself unable to forecast the events, and general results, by his experience of naval history.

We must always well understand that there are amongst us two parties who look at the prospects of naval wars from opposite stand-points. There is a party—and not at all a small one—which tells us that the enormous changes in naval material that have taken place since 1815, and in the general state of the world, have so completely altered the conditions, that it is not of the slightest use in going back to the last century, or farther back, or forward, with the idea of forecasting. We must, on the contrary, understand that there is no way of forecasting, and that we can only act sensibly by being prepared for every kind of astonishing and unexpected event, and by comprehending that nothing is impossible, or even improbable, in the future of naval war.

There is another party which is very likely smaller, but I think much more consolidated and firmer in its opinions, which declares that the main principles of naval warfare are of such a fixed and unalterable character that nothing can disturb them, or prevent them from exerting a commanding influence in every naval war in the immediate or remote future.

That party is no doubt keenly alive to the necessity for watching every point of material or moral progress, with the view of calculating beforehand how the established principles will apply to them, but it never will allow that the principles themselves are touched; and I think the party finds its methods immensely strengthened and confirmed by what took place on the other side of the Atlantic, and holds that the Spanish-American war, in all its general features, followed the conclusions the party had arrived at from the study of former wars. Yet there is a certain disappointment over the review of the facts; for when we examined certain conditions that had never existed before, we expected to get some lessons as to what they would represent, but we have found that they have not come to the front at all, and our opinions about them—which must be somewhat speculative—are left just where they were before the war opened. The lessons, therefore, on almost all matters, small and great, are but confirmatory of what we knew, and of what we expected to happen, and that while there are few new lessons available, all the conclusions we held before the war broke out are confirmed and strengthened.

I think I ought to say here, however, that while this is the state of mind of that particular party on this side of the Atlantic, as lookers-on at the game, the like view appears to be losing ground on the other side of the Atlantic, and there are some signs of re-action there which do not seem to us to be in any way logically based on the results of the war.

Just before war was declared, I took an opportunity of pointing out its probably anomalous character; comparing it to that which came about by the revolt of our American Colonies, and that which was undertaken by Japan against China to secure predominance in the Korea. There was in each of these cases a special objective which to some extent modified the ordinary rules and practices of naval war. In such ordinary war the struggle is between two nations, the one trying to get the better of the other, and to compel it to accept a peace that is advantageous to itself, and hurtful to its opponent. But in neither of these cases was it so. The main point for France from 1779 onwards was to drive us out of what are now the United States; and the main point for Japan was to drive the Chinese out of the Korea.

In the Crimean war our object was to injure Russia generally so much as to compel her to accept our terms. The attack on the Crimea was but an incident in the war, and there was no intention on our part to drive Russia out of that or any other section of her territory. But France in 1779, even when she and Spain brought a great fleet into the Channel and prepared an invading army behind it, took that as an incident, and never pushed it to the extent France did in trying to drive us out of our Colonies.

So it was with Japan; her immediate object was to drive the Chinese definitely out of the Korea, and though a war against China herself supervened, that was in a sense due to the fact that China would not admit the *de facto* position that Japan had acquired in the Korea, and would not make it *de jure* until she had been further injured. But as soon as the Korea was secured, the anomalous character of the war passed away, and Japan pursued the course that every winning naval Power had always pursued.

The immediate design of the United States was to drive the Spaniards out of Cuba, and the inference from experience and history, therefore, was that the United States as the superior naval Power would not, at any rate at first, pursue the course which ordinary naval war dictated. Having friendly forces, in the persons of the insurgents, already occupying Cuba, she would have the idea of immediately throwing troops into the country without waiting for that, at least local, command of the sea that history had shown to be the only safe preliminary to invasion. With regard to Porto Rico, there was no friendly population, and, therefore, the inference was that there would be no invasion of that island but a regular one, not to be undertaken until the command of the sea was secured.

My own inference in regard to the earlier landings in Cuba was not quite as correct as it would have been, had I known that there were no ports in the hands of the insurgents; but yet the expected early landings were attempted, and seem to have only been greatly limited by an actual want of American troops, and by the fact that the Spaniards were found in force to resist them. But the general rule was followed in the invasion of Porto Rico.

It was certain that blockade would be set up on the Cuban ports as the first measure of the war; but it soon appeared that there was not force enough on the side of the United States to do more than blockade the principal western ports on both sides of the island.

But this blockade of Cuban ports was itself anomalous. On principle a naval nation does not set up a blockade that can be raised by the enemy's forces. She faces such forces in the first instance, and only uses forces for blockade that can be spared for that service after the enemy is faced. But though establishing the blockade of Cuban ports while Spanish forces sufficient to raise it existed, was anomalous, it was really so only in theory.

Before the United States, on the declaration of war, or even before it opened, two principal courses lay; they were: to accept an anomalous conduct of the war, and make Cuba the objective; or, to leave Cuba apart and turn the war upon the Spanish coasts in Europe, and carry it on there, compelling Spain by the pressure to ultimately surrender Cuba and anything else that might be required of her. The anomalous course was chosen, because in the first place there arose a reasonable conviction that much of the represented Spanish force was more nominal than real. But even had it been otherwise the distance of the Spanish naval force from Cuba was so great, and intelligence of its motions so full, and capable of being made so accurate, that ample warning was sure to be

given. So that, if it was less expensive and more convenient to make the direct, rather than the indirect, attack upon Cuba, there was really nothing to prevent it, provided arrangements were made for the meeting of such Spanish forces as might, after due warning, come over.

The point was the impossibility of an attack on the United States ships by the Spanish ships without warning. The days of surprises were wholly over, and misinterpretation of intelligence, or mere blundering, could alone leave the superior naval force open to serious reverses.

#### INTELLIGENCE.

I think that this is the proper point to advert to the lessons as to intelligence. The teaching of history generally is that the amount of intelligence gained was really in proportion to the means for its conveyance. Nothing stopped it when its carriage was feasible. Of course, it rather failed in days such as those of 1693, when the news of the fall of Goree on the coast of Africa had to travel to the West Indies before it reached England. But, in general, news from the enemy's country, and news of his preparations and intentions, was much more frequent and complete than we now generally admit.

But one of the strongest positions of that party which would have us believe that in naval war "old things are passed away, all things have become new," had been that intelligence would fail. That steam—it was, of course, always steam that made such changes—had so affected conditions that now we should never get intelligence of anything. That the great danger to these islands, for instance—a greater danger than had ever existed before—was the secrecy with which preparations in France could be made, and the suddenness, as of a bolt from the blue, with which the descent of hundreds of thousands of men could be made upon our shores.

But nothing in the world was ever seen to equal the masses of intelligence, whether general or detailed, that in the Spanish-American war were open not only to the belligerent Governments, but to all the world a few hours after the occurrence of each event, or after the establishment of each point of overt preparation. The reporter altogether surpassed himself; and in America, at least, the Press interest in the war was more journalistic than political. News of the war, not the progress of the war, was the point; and if there was not natural news it was necessary to manufacture artificial news; for the columns of the newspapers all over the world must be filled each morning and evening with something that at least looked like news.

The fierce light that beats upon a throne should pale beside the Press light that beats upon a belligerent. On the coasts of Cuba the swift Press-boats swarmed, and every second man was a reporter. No United States ship could try the range of her guns against a Cuban rampart, that a Press-boat was not flying to Key West to tell the world that the rampart had disappeared. But there was certain to be a reporter lurking behind the rampart who would rush off to a Cuban telegraph

office to tell the world, *via* Jamaica or San Domingo, that the United States cruiser had missed the work altogether, and had only killed a donkey.

And all the world knew long before things were done, what was going to be done. There were no councils so secret but that the reporter was present behind a screen with his note-book. There was no strategical proposition so subtly whispered that a bird did not carry the matter to the nearest telegraph station. There was, in fact, daily—almost hourly in London—more intelligence on the progress and prospects of the war than a single mind could carry, and the difficulty was not want of news, but what news to follow up and assimilate, and what to leave on one side. It was never difficult to separate the natural news from the manufactured article. The reporter always had his tricks and his manners, and he was always sure—when he took to manufacturing—to make up his story according to his lights; and his story so prepared was always so palpably impossible, that one passed it after reading the head-line.

Error is, of course, undying. But at least the error of supposing that the operations of naval war can ever be secret, sudden, or unexpected, should be scotched for a time by the lesson of the Spanish-American contest.

The official view published in the Appendix to the *Report of the Chief of the Bureau of Navigation*, at Washington, summarises the situation as regards intelligence that may be taken as the best possible guide in preparing for future naval war. "During the war the board" (that is, the "Naval War Board"), "and previous to the formation of the board, the Department itself, was kept informed of the movements, resources, conditions, and plans of the Spanish naval forces by various secret agents. It is now known that the Department was promptly informed of all important movements. At times, however, information was conflicting, and decisions had often to be made as to what was most probably true."

#### TELEGRAPH CABLES.

We are naturally brought, while considering the general question of intelligence, to discuss the subject of telegraph cables. The larger party took in this, as in most other cases, what might be called the dramatic, the romantic, and the startling view of future naval war. Indeed, all through I think the opposing views might be fitly characterised as the dramatic and the business-like view. There was so much of the uncertain and the surprising in the incidents of many of our former naval wars, that men of our own time were disposed to believe that such conditions were principles, and would be accentuated and more highly coloured as sea power increased and became more accurately measurable by the advent of steam propulsion. I think they forgot that such dramatic surprises as the appearance of de Tourville's fleet in Freshwater Bay, when Torrington was collecting and manning his fleet at St. Helens, in 1690; or the uncomfortable, and rather too sharp, surprise that the captain of the "Ardent" got when he found himself running in a friendly way into the heart of the great Franco-Spanish fleet off Plymouth, in



1779; or the awakening that Barrington got by the sudden appearance of D'Estaing's fleet when he was half through his invasion of St. Lucia in 1778—were all the result of an uncertain motive power. The wind, in its waywardness, blocked for the one side the transmission of intelligence, and favoured for the other side the transport of force. I say I think that those who in our own time have sought to persuade us that the steam war would be far more prolific in the element of dramatic surprise than sailing wars ever were, have failed to note that it was the uncertain mode of propulsion that endowed former wars with such fascinating romance, and that it could not possibly co-exist with a fixed rate of conveyance both of intelligence and of force; that henceforth we must look at naval war as a hard, business-like, mathematically certain series of transactions, excluding dramatic occurrences which were the result of the unexpected, and of surprise.

We cannot, of course, deny, in the face of Admiral Persano's surprise at Lissa, that such things may be in steam wars; but then we must say that if they occur they will be mainly, if not entirely, the result of stupidity and neglect; indeed, if we go closely into the examination of these dramatic incidents in former wars we shall often find that stupidity, neglect, and even treachery, had something to do with many of them. What we have to say, however, is, that modern conditions give far smaller openings for dramatic occurrences than existed while sea war was carried on under sail.

With some inner consciousness that this is so, the thinkers who look for more dramatic surprises, and less of dull business, in steam wars, have generally fixed on the telegraph cables as a *point d'appui* for their forecasts; and it has been a favourite device in preparing a picture of a future British naval war to outline the sudden isolation of these islands by the cutting of all our telegraph cables, as the opening ceremony.

Those who doubted this sort of thing altogether seem to have based their opinions on two grounds: first, that anything like a wholesale cutting of cables might turn out to be a long and somewhat difficult operation, while with modern appliances, the restoration of cable communication is not a much more difficult operation than destroying it; and, secondly, that conventions, and the fact that cables were often international property, of the utmost importance to neutrals, would absolutely prevent a belligerent from playing tricks with them.

I have not had leisure to fully examine this question in its relation to the late war—indeed, I suspect that it would require a separate paper to deal properly with so intricate and important a subject. All I can do here is to make one or two general remarks as to how we may regard what happened as a lesson of the war.

I think we shall agree that if there ever was a case in which a belligerent would be tempted to exercise all the rights and powers he possessed in the matter of cable cutting, it was presented by Cuba to the United States; and yet Cuba was never, I believe, isolated from the outer world in the matter of telegraphic communication by any act of the former country.

It is to be remarked that the first note we seem to have as to the United States view of the question is a telegram from the Secretary of the Navy to Admiral Sampson at Key West, dated April 25th, directing that "Telegraphic cables must not be interfered with until further orders." This was followed up by an explanation to the admiral, thus worded:—"Referring to your telegram, *re* cables; my telegram applies to all cables. We are considering the advantage of declaring all cables neutral." With regard to the cable from Havana to Key West, the United States Government naturally took possession of the office at Key West, and so controlled the communications.

Permission was given to cut the cables on the south coast of Cuba on the 30th April. On the 11th May, the "Eagle" was searching unsuccessfully for a cable laid between Cienfuegos and Batabanos to the west, in very shallow, clear water. On the same day, Captain McCalla reported the successful cutting, by boats used close to the shore, of the cable running from Cienfuegos eastward to Mazanillo. Both these cables were laid in Spanish waters with their ends in Spanish territory, so that the international question was not raised. But we are struck by the fact that the cutting of the last cable could only be undertaken 150 yards from the shore, and the boats sustained so heavy a fire that they had to draw off after cutting two out of three cables found.

The next attempt was by the "St. Louis" and the "Wampatuck"—which seem to have been specially appointed for the duty of cable cutting—to destroy the cable from Santiago to Jamaica. It was made at night, on the 16th May; but the "Wampatuck" being discovered by a patrol-boat, the endeavour was abandoned.

The attempt was renewed on the 18th, and the cable was grappled in 500 fathoms water, a little over a mile from fort Morro. The ships were lightly armed, and when fired on by Morro could do nothing but hold on to the cable and steam slowly out with it, which was done; but Captain Goodrich was under the impression that there were two cables. He could only hope that the second was damaged—if it was not, the attempt was unsuccessful.

On the 19th May, the same vessels made an attempt to cut the French cable from Guantanamo. A Spanish gun-boat successfully protected the cable and drove off the lightly armed American ships, and prevented their cutting the cable though they had grappled it. The other end of this cable was landed near mole St. Nicholas, the western point of San Domingo. Thither Captain Goodrich proceeded, and on the morning of the 20th May he broke the cable in deep water, taking care not to pass inside the 3-mile limit.

The next attempt was to cut the cable off Port Ponce, Porto Rico, but rocky bottom and deep water prevented its success. Captain Goodrich was clear that special ships with special apparatus were necessary for the service of cable cutting, and he made the following remark:—"I venture to remind you also that cable grappling is a very slow and tedious operation, often necessitating repeated drives over the same ground. The good fortune which has attended our efforts so far is, I am told, quite exceptional in cable practice."

Later, but not until the middle of July, two local cables, running from Mazanillo to Santa Cruz, and from Santa Cruz to Jucaro, both lying in shallow territorial waters, were cut, and with these, the cable-cutting record across the Atlantic appears to close, leaving Cuba still in communication with Spain.

In the East, Commodore Dewey, being in possession of Manila Bay after the destruction of the Spanish squadron, made an application to the representative of the Eastern Extension Telegraph Company at Manila to be allowed to forward messages in the ordinary way. The Spanish governor refused permission, whereupon Dewey cut the cable, and took the end on board one of his ships. It was a long time before communication could be re-opened owing to lack of instruments and operators; but soon after Dewey had thus cut off Manila, and opened direct communication with his Government, the Spanish Government exercised a right they possessed by agreement with the Eastern Extension Telegraph Company, and sealed the Hong-Kong end of the cable, thus isolating Dewey and Manila also.

These are the principal facts relating to cable-cutting operations of the war, and as the experience is wholly new, all the lessons are new, and are by no means the least interesting, or the least important of all that the war offers to us.

I have been greatly indebted to Mr. F. E. Hesse, the manager of the Eastern Extension Telegraph Company, who has given me information of the utmost value in enabling us to understand what the situation has been. In reviewing the facts, I am resting my inferences upon this information.

We note that the United States Government did not propose at first to cut any cables, and had been at war ten days before it changed its mind. That alone shows that the pros and cons were complex and difficult to balance. The fact is that all cables are protected by international convention, but that—as so often happens in great State documents—the really difficult point is evaded, and nobody knows what the rights of neutrals in regard to cables are, for the convention does not in any way “restrict the freedom of action of belligerents.” As the action of belligerents is limited by the rights of neutrals, and the latter are not defined, the convention leaves us where we were. I have mentioned the two things that have seemed to interfere with or hinder that dramatic and sudden surprise of isolation, held by some as likely to supersede declarations of war, and we are to draw the lesson that either of them, or both of them, maintained telegraphic communication with Cuba throughout the war.

It seems plain that there was great difficulty in destroying cables except in shallow water; and that, on this account, batteries on shore, and naval force close at hand were both found efficient protectors of cable communication. As to international law, it is understood to be clear that a neutral cable within the enemy's territorial waters takes the chances of war, as does all neutral property in the enemy's territory. But the somewhat curious and clearly misunderstood point is, that out of

territorial waters a neutral's cable is protected by international law as being neutral property, and cannot be cut there except in defiance of the rights of neutrals.

If I rightly understand matters, Captain Goodrich transgressed international law by cutting the French cable outside the 3-mile limit off mole St. Nicholas. He respected the neutrality of Hayti, which did not count for much, but he destroyed, or attempted to destroy, French property on the high seas. Apparently the French cable from Cuba to Hayti was in three conditions. It was open to destruction by the belligerent within 3 miles of the Cuban shore, without raising any claims of neutrals. From the Cuban 3-mile limit, to the Haytian 3-mile limit, the cable was as much French property as any French mail-steamer in the same waters, and the belligerent had just as much right to cut the cable as he had to capture the French mail-steamer. Within the Haytian 3-mile limit the cable was doubly protected. It was French property in Haytian territory, so that French rights and Haytian rights would have been equally defied had the cable been touched in those waters.

Practically then it seems that quite apart from any difficulty arising from grappling cables in deep water, an intending belligerent proposing to astonish us, by way of dramatic surprise, would have to cut all our cables within 3 miles of our own shores, or else leave it alone. The lesson appears to be that it is not impossible that if we were at war, attempts might be made to damage us in that way; and it seems a legitimate conclusion to assume that the ends of our cables ought to be covered and protected by a few of the longest ranged guns properly mounted in a battery. Where possible—as illustrated by the usefulness of the Spanish gun-boat at Guantanamo—naval force should be localised with the same defensive object. On the whole, the lesson does not seem unsatisfactory.

The case of the Manila cable is evidently special, and that it is understood to be so. We may have noticed by the announcement in the papers the other day, that the Eastern Extension Company had brought a claim against the American Government, which the American Government had, in the first stage, disallowed. It is evident that the claim made is likely to raise the whole question of the neutrality of cables; but the matter being *sub judice*, I might prejudice it by offering any opinions. All I will say is, that we should watch the case as closely as we can.

#### THE LARGER QUESTIONS OF STRATEGY.

We may now consider briefly and broadly the principles of strategy adopted by the United States in conducting the war. I have mentioned my early impression that the main conduct of the war would be what it turned out to be; but it did not follow that I wholly approved of it. On the contrary, I think that had Spain shown any real comprehension of the conditions, and had she shown any powers of dealing with them, the naval war on the side of the United States might have been much less successful than it was.

Without question, the only safe way for the country possessing the superior Navy, is to put its ships into touch with the ships of the enemy

rom the beginning, and never to lose touch with them if it can be avoided. When this is done, the superabundant force of the more powerful Navy can be employed in commercial blockades or in conducting and supporting land attacks, because it is not liable to be interfered with, owing to the watch kept up upon the only ships that could interfere.

The sure way of conducting the war would therefore have been for the United States to have transferred a sufficient force to the coast of Spain to have at least balanced the forces known to have been in Spanish ports; to have sent a strong squadron to St. Vincent the moment it was known that an assemblage was to be made there. The seizure of Minorca as a base would probably have been an easy operation; and in any case it would have been morally certain that if this action had been taken, nothing offensive on the other side of the Atlantic could have been thought of by Spain.

Then for Cuba and Porto Rico, landings for conquest might have been effected at leisure, because there would have been no Spanish naval force to interfere with them beyond what the surplus American forces was capable of dealing with locally.

No doubt there was much to be said on the other side in considering this orthodox strategy, or the heterodox system would not have been adopted. I suspect that large matters of policy were against it. All Europe might have been alarmed by the sight of the American flag in European waters, and alliances hostile to the United States might have been formed. It may also be questioned whether the United States Navy was strong enough in the class of ships required to assume the offensive on the Spanish coast. But I suspect the real reason was a better measure of the actual Spanish naval force by the United States Government than was open to mere inquirers.

Yet, in spite of these things, the extraordinary effect which the mere sailing of Cervera's most ineffective squadron had upon the whole of the American operations, shows us how keenly alive the American Government and the American Navy were to the risks that were being run by transgressing the fundamental principles of naval war.

There are, as we all know, some amongst us who scoff at Lord Torrington's phrase, the "fleet in being," but without any exception the scoffers have all understood the power of a "fleet in being" to be something much more subtle and difficult to explain than is really the case. In fact, there never was anything to explain about it, as it only expressed tersely what always had been and always would be the case, namely, that no man undertakes a task when he knows there is something existing which will most probably prevent his completing it. And so in this war, we have it put with absolute simplicity by the authority conducting it, without the least consciousness that there is any sort of abstruse theory hanging about it. Mr. Secretary Long telegraphed to Admiral Sampson on 3rd May:—"No large army movement can take place for a fortnight; no small one until after we know the whereabouts of the four armoured cruisers and destroyers." When Mr. Long sent this despatch, he assumed that Cervera might be at Porto Rico in five



days' time, namely, on the 8th of May. He was assuming, in his caution, that Cervera would steam 10 knots all the way from St. Vincent, which was equivalent to saying that the squadron could not be at Porto Rico *before* the 8th May. In reality, on the 8th May the squadron was more than 600 miles east of Martinique.

I was always of opinion, from the time that I began to look into these questions, that whatever the restraining power of a "fleet in being" might be, when fleets moved according to the wind, it would be enormously increased by the employment of steam propulsion, yet I own that I never expected it to extend so far as it did in this war. The much maligned and much misunderstood Lord Torrington only went so far as to tell the Queen's Ministers that he was sure that de Tourville would not try to do anything special, as long as he, Torrington, was watching him. He did not at the time know that de Tourville had himself said as much a few months earlier; but he put himself into de Tourville's place and became sure of how de Tourville would look at it. But now we have Mr. Secretary Long going infinitely further than anyone had ever gone before, and turning Torrington's idea into a commonplace. Mr. Long makes it clear that in steam, an inferior squadron, whose destination is utterly unknown, but which is certainly 1,200 miles off, may absolutely paralyse all movements, small or great, by way of invasion, until its whereabouts is discovered.

Obviously, according to this practice, Cervera, by lying in mid-ocean, out of the track of ships that might report him, could have paralysed the American operations for an indefinite time. The thing seems absurd, I grant, but I suspect it is only so to those who are not feeling the responsibility of action on their shoulders.

But certainly the lesson we must draw is that the American strategy was hazardous in so far as it departed from the stereotyped rules of naval war. The "Colon" and the "Maria Teresa" were at St. Vincent on the 14th April, and it might have been certain on the 11th that they were going there. There was plenty of time for the Americans to have established a watch upon them had they been so minded.

But as it was, the fact that Cervera and the ships in Spain were not under observation, allowed a sort of panic to reign all along the Atlantic coasts of the United States. I rather wonder how much money was wasted in preparing by means of fortifications and submarine mines to meet—not to prevent—attacks that were the least likely of all the possibilities of the war. We have heard of the inconveniences suffered from the presence of submarine mines in the American ports, but we have yet to hear of the little annual bill which will for years be presented for the scheme of local defence of the American coasts which it seems is certain to be adopted. In regard to these local and fixed defences, their real fatuity seems to be seldom apprehended by those who have had no means of knowing what the responsibility of sea command is. As long as we look at things from the side of the defenders, it seems the most reasonable thing in the world to close the harbour of New York by submarine mines, batteries, and what not, in war-time, lest an enemy's squadron should



come inside and bombard the city. There is not any answer to be given to a panic-stricken populace, when there are unwatched squadrons about. All that can be said is to point to experience, and to what men accustomed to command who have thought over the matter, say about it. The experience is that as in the Vlie, as in the Medway, and as at Mobile, so in Manila Bay, and at Cardenas, naval commanders will run into considerable dangers in order to get at ships. But towns are not their business. If towns are to be attacked, there will be a landed army and all things regular. No naval officer with his hands free would in war proceed into New York harbour in order to damage New York, even if he believed there were no batteries and no mines to prevent him. He understands quite well that he will do infinitely more mischief to New York by lying off the port, out of range of any guns mounted in battery, and paralysing trade by checking the exit of ships and capturing those that try to enter. But it takes training, and perhaps study, to understand this, and so the demand, which it is impossible to meet, because it is insatiable, or to check, because the reasoning cannot be appreciated, remains to draw away money in pure waste.

I think it is almost obvious that these panic demands would not have arisen in the United States, had it been possible to tell the citizens that the first act of the war had got every Spanish ship under observation. They were the result of allowing loose squadrons to get into the Atlantic without any knowledge of their whereabouts or objective.

We notice, too, that owing to the unorthodox strategy adopted, two considerable squadrons (what was called the "Flying Squadron," under Schley, and a patrol squadron under Howell) were long detained by way of protection of the United States ports and coast line. It is very necessary to note the entirely different attitude of the American population towards the Navy from that which has for ages been common to the people of these islands. In our islands, almost all through history, the public have denounced the Governments and the admirals who did not get and keep their fleets away from home and in touch with the enemy. In fact, as long as the Navy was not visible, and was certainly at sea, the public did not care so much as to what was actually done by the fleets in the supposed endeavour to keep touch with the enemy. They hardly recognised that the methods adopted by Hawke and Nelson, Collingwood, Cornwallis, and St. Vincent were right methods and fulfilled their end as far as the material available went, while the methods of Bridport and Colpoys were wrong methods, which, though the material was pretty ample, absolutely failed to achieve their object. Admirals who, when the matter is closely looked into, deserved the highest censure for distinct neglect, and failure of judgment, passed muster in the eyes of the public, because their failure was vaguely held to be more their misfortune than their fault.

But as far as I understand, the pressure on the American Government was more to keep the Navy in sight of the population, that it might have a sense of its defensive force.

I would not be understood as declaring that a certain amount of localised naval defence is historically condemned, when it is stationed at much frequented ports. We generally localised such forces with the view of driving off stray cruisers, which, even if they were of very inferior force, might paralyse trade by putting in an appearance off such ports. Nor are shore batteries constructed to give support to such local naval defence to be deprecated. We trace the combination almost continuously in our naval history.

The United States went very far beyond what history had taught us to expect. Considerable squadrons, very much wanted for maintaining the command of the sea, were long detained in a wholly defensive attitude—an attitude not commonly found on the part of the superior Navy in former wars.

The position was altered the moment Cervera's squadron was localised. The United States received information on the 13th May that Cervera was off Martinique; and on the same day Schley was ordered from the Chesapeake to Charleston, and next day was ordered to proceed to Key West with all possible despatch. This simply shows that Schley's defensive position was taken up simply because Cervera had not been watched or located, and that what had been hitherto done was no more than an indifferent substitute for the orthodox methods.

It is rather remarkable how long it was after Cervera had been located at Curaçoa, before an effectual blockade could be set up of Santiago. The United States Government knew on the 15th May that Cervera had touched at Curaçoa. The difficulty was in knowing where he was bound to. The opinion on the 16th was that it was most probable that he was bound to Santiago, or perhaps to Cienfuegos, though there was the possibility that he meant to pass either east or west of Cuba, to operate in the Northern waters. Cruisers were despatched to try and get touch with him, but they did not succeed. Schley arrived at Key West on 18th May, where Sampson was at that time; and on the 19th, Schley was despatched for Cienfuegos with three heavy ships, two cruisers, and two torpedo-boats round the west end of Cuba. On this day there was a report that Cervera had entered Santiago, and the report turned out to be true. Schley arrived off Cienfuegos on the 21st May, but could not tell whether the Spanish fleet was there or not, the anchorage not being visible from the offing. Sampson ordered Schley to proceed off Santiago on the 25th, but Schley was met by the coaling difficulty. The colliers were there, but not the smooth water, and there should have been more colliers with better appliances. But Schley seems to have been certain on the 24th May that the Spaniards were not at Cienfuegos, and he got off Santiago on the afternoon of the 26th, seven days after Cervera's arrival. But still, on the 28th he had not been able to coal on account of the rough sea. It becomes clear, therefore, that if there had been full supplies of coal and full provision of coaling appliances at Santiago, and had Cervera's squadron been a reasonably efficient one, instead of the miserable abortion it really was, all that it could have proposed to do by its entry into Santiago might have been done without any interference from the United States Navy.

If I may express an opinion which is liable to be reversed on a closer examination of the data then I have been able to give, I should say that, in the minds of those in authority in America, a sufficiently clear distinction was not drawn between the process of merely observing for the purposes of report; and of watching for the purpose of hindering movement. It is quite true that during the anxious period telegrams were flying everywhere to look out ships that were not fighting-ships, to go hither and thither for the purpose of collecting intelligence. But these telegrams do not give one any idea of system or plan. They rather arose out of the momentary emergency, and one does not feel surprised that they failed in every way, and that the news of Cervera's movements reached the American Government through the ordinary channel of the professional reporter, who let the whole world know how things were going at the same time.

The broad lesson is at any rate perfectly clear. The steam "fleet in being" has a power of upsetting the whole plan of a war, even though it is absurdly inferior to the forces it threatens, which no one ever dreamed of assigning even to a superior fleet of sailing-ships. I do not mean to say that lesson is permanent; only that we must take it so on the evidence before us.

A word must now be said of the strategy which was open to Cervera.

The revelations he has given to us of the state of his squadron, and of the whole Spanish Navy, show us most clearly that nothing was ever open to him, or to any part of the Spanish Navy. He was not only asked to make bricks without straw, but without even clay, and his failure was always certain. Spanish statesmen, it is to be supposed, thought that the honour of their country was better served by exposing to the world its incomprehensible incapacity, than by making terms with the United States, and parting with Cuba for a consideration, before this incapacity was exhibited to the world. But as it stands, Spain did nothing that she ought to have done, and left undone everything that she ought to have done.

Taking Cervera's squadron of four brand-new first-class cruisers and three torpedo-boat destroyers, as they might have been, and as I supposed they were, I imagined the following programme for them when I learnt that they had left St. Vincent on the 29th April. I supposed them to be fully armed, but they were not; fully manned, which perhaps they were not; fully coaled, which they were not; and with clean bottoms, which they had not. It never crossed my apprehension that any squadron would be ordered to sail on a hostile expedition with any of these things wanting, because I could only regard such an order as leading directly to the sort of disaster that ultimately befel the squadron. I could not suppose that any statesman or group of statesmen would look upon that as a proper object to strive for.

But supposing all to have been as it might have been, I thought that Cervera might, having left St. Vincent on the 29th April, have found himself, with 4,000 miles of coal still in his bunkers, steaming into Key West at breaking daylight on the 14th or 15th of May, and ready to deal

the utmost destruction by gun and by torpedo upon the unhappy ships lying there at that moment. I thought it might further be possible to get at some of the lamer ducks off Havana. I thought he would certainly go, as he did, between Martinique and St. Lucia; but I considered that he would pass those islands during darkness in order that no note of his whereabouts should appear. I thought he would pass south of Jamaica and west of Cuba without being seen, that he would in consequence come upon the ships at Key West completely unannounced. Schley was then at Charleston, Sampson far east at Porto Rico, so that if anything was to be done, the scattered state of the United States squadrons offered as perfect an opportunity as was ever likely to occur.

I had assumed that Cervera would have taken the destroyers in tow, and I subsequently imagined that he would, when south of Cienfuegos, have sent one of them in by night for exact information of the distribution of the United States ships, all having been carefully arranged by telegram before he quitted St. Vincent. The blow I imagined possible had only been left open by what I considered the defective strategy of the United States, not only generally, but specially, as it seemed to me, in the detachment of Admiral Sampson, so far from his base as San Juan in Porto Rico, near about the time when it was possible a blow might be struck. It did not seem to me possible that Cervera's objective could be other than the ships, whatever their character might be, at Key West and Havana, and I could not, and do not now understand, why the United States fleets, having accepted the defensive attitude, should not have concentrated at the only points really open to attack. The detachment of Sampson to the east, and the order to Schley to proceed to Key West, seemed to me to disclose divided counsels. However, notwithstanding possibilities, I could not help feeling that such extremely dramatic occurrences were too rare to be believed in, and I closed one of my forecasts with the remark that, after all, what was to be expected was the commonplace.

It was practically all over when Cervera, after a run at the rate of about 7 knots, disclosed his whereabouts and his want of coal, at Martinique on the 12th May. The second localisation at Curaçoa only confirmed the hopelessness of the case, and the entry into the death-trap at Santiago after a stroll across the Caribbean Sea at something like 7 knots speed merely completed a disastrous record deliberately entered upon when Cervera was ordered to sail from St. Vincent.

There was great controversy, which is not yet dead by any means, over a remark of mine as to the deterrent effect in the question of French invasion, possessed by Torrington's fleet even after it had been defeated. While none of us, I think, anticipated that the approach of Cervera's squadron—assuming it to be perfect in all respects—would so absolutely paralyse and control the whole of the United States naval operations, our knowledge of what this squadron really was greatly enhances our wonder. Yet the American Government could hardly have been unaware of the real state of the case. The "Cristobal Colon" had no heavy guns on board. Other ships had either the wrong guns, or the wrong ammunition,

or both; and in any case the supply of ammunition, as of coal, was short. The speed, that which of late years we have been accustomed to greet as the chief element of force, was a paper fiction. The "Vizcaya" had been nine months out of dock, and most of the time lying in Havana harbour. The "Almirante Oquendo" was not much better. A sea speed common twenty years ago was that achieved by these latest pattern ships, and they never were, and never could have been, a real threat to anyone, yet they paralysed everything.

We learn from Cervera's squadron that nations in council will sanction national acts the stories of which read like nursery tales in point of unreason and inconsequence. It would be silly to say that Cervera's proceedings teach us that ships must be what they seem to be in order to succeed in any enterprise. The real teaching is that however absurd it is to say so, there are nations in the world who have not got so far in their schooling.

But there is a by-product applicable to ourselves in the general lesson. It is not so long since we were building groups of ships, some of which were copper-sheathed and some not. The sheathed ships were shown with a couple of hundred tons more displacement than the unsheathed, and with a consequent half a knot less speed. I never fathomed the policy. So soon as a safe method of applying copper sheathing to steel bottoms was discovered, it seemed to me to follow that all steel ships would be sheathed. In spite of the paper record, the sheathed ship would be the faster, as no one could guarantee that speed would not be as much wanted when a ship was three months out of dock as when she was three weeks out of dock. If the paper had truly recorded that the extra half-knot disappeared so many weeks after coming out of dock, I do not think we should ever have allowed the distinction. I hope we have got out of the fallacy.

So soon as Cervera was localised in the harbour of Santiago, the United States followed the practice of naval war with the utmost closeness. Cervera was watched and masked with the full strength of the American fleet; and it was almost immediately determined that his presence there demanded the capture of the port. The moment the blockade was set up, Key West ceased to be an efficient naval base. Though the water off the port was sometimes—perhaps often—smooth enough to allow of colliers being brought alongside, the necessity for seizing a temporary base was at once apparent, and Guantanamo was so dealt with as soon as possible, just as it had been in the old days. Key West there and then became only of secondary importance to the Navy, as it was not in the line of supply from the producing Atlantic ports.

The lesson is obvious. Dewey had set up his base at Cavité, captured from the enemy; and Sampson followed suit at Guantanamo. Our permanent bases are only permanent in peace-time, or in war so long as the objective of our main fleets makes it convenient that they should use them. It is a mistake to suppose—as is so often done—that the bases make the fleets. The fleets make the bases, and it is simply a matter of convenience whether the bases already made are adopted in war. The



real permanent value of our so-called naval bases is connected with our trade, not with the offensive operations of our fleets.

No doubt abundant lessons of detail may be drawn from the landings at Santiago, and the subsequent military proceedings; but as, broadly, the Americans only did what all invaders have done if they were to prove successful, that may be passed by.

On the American strategy in the East, there is nothing to be said. Dewey's objective was the Spanish fleet. He struck at it in the usual way, destroyed it, obtained command of the sea, and did what he liked afterwards—all according to strategical routine.

#### TACTICS.

We now conclude with a review of the tactics pursued by the belligerents—that is, as I understand the word, the acts done in actual contact with the enemy, and the lessons to be drawn therefrom.

The American position in this matter began by being exceedingly anomalous. The United States were fully expecting, and spending a good deal of money and care in defending themselves from, a particular kind of attack which they themselves never dreamed of making. The Americans expected all their coast towns to be blown about their ears, but they never took action about blowing Spanish towns about Spanish ears, except very specially and very half-heartedly, after their army was landed at Santiago. But the reporter, knowing what was expected of him by the ignorant, took care to leave no Cuban town unbombarded. So that I suppose—indeed, some remarkable utterances from the other side of the Atlantic make it certain—that popular belief in the bombardment of towns by ships has been confirmed by the war, though the war has only repeated the lesson of all former wars, namely, that this is not a thing to be expected, and that it need not be guarded against.

Five days after the declaration of war, Mr. Secretary Long telegraphed to Admiral Sampson words which briefly summed up and adopted the long established practice of war in this respect:—"While the Department does not wish a bombardment of forts protected by heavy cannon, it is within your discretion to destroy light batteries which may protect vessels you desire to attack, if you can do so without exposure to heavy guns." Towns, we observe, are not in anybody's thoughts who is in authority. They only dwell in the imagination of the uninformed multitude.

And then fortifications. Sampson had actually some idea that Havana could be carried by a close attack on the batteries, and afterwards held by the Navy alone. The wiser counsels of authority prevailed against an attempt that all history pronounced a mistake. But it is a little remarkable that Mr. Long should have mentioned the possibility of silencing batteries in order to get at the ships they defended, because in all ages this has been a legitimate object, and because history has shown that batteries erected with the object of supporting and defending ships, very often fulfil their object perfectly.

It was therefore in accordance with the rules of war that at Cardenas the fire of the forts should have been braved by the American squadron



in order to get at certain gun-boats protected by it, on the 11th May. As has often been the case, the forts proved an efficacious defence to the ships, the Americans withdrawing after being severely handled.

It was the reverse with the batteries at Cavité in Manila Bay. They not only failed to shelter the ships, but apparently did not make their presence felt. Yet both attack and defence were usual, and the batteries might have saved the ships had they been efficient and of proper strength.

But a very significant commentary on the usefulness of batteries in protecting towns was offered by Commodore Dewey at Manila. There were found batteries protecting the town, and these batteries began to exercise their protecting power by firing on Dewey's ships. Dewey replied by message, not by gun. If the batteries did not cease firing, he would open fire upon the town; and the batteries were thenceforth silent. Really, the extreme of paradox was reached.

All round the coasts of Cuba, fire was now and then exchanged between the American ships and the Spanish batteries, without any apparent object. The fire was always distant. The reporters generally claimed for the Americans wonderful destructive results, which the Spanish accounts always denied.

The only set bombardment of fortifications to be noted is that made by Admiral Sampson on those of San Juan, Porto Rico, on the 12th May, the real reasons for which I have failed to discover. Admiral Sampson had looked into San Juan harbour and had seen that Cervera's ships were not there, but was in doubt whether they had never been there, or whether they had come and gone. He goes on:—"As their capture was the object of the expedition, and as it was essential that they should not pass to the westward, I determined to attack the batteries defending the port in order to develop their positions and strength, and then, without waiting to reduce the city, or subject it to a regular bombardment—which would require due notice—turn to the westward." It will be observed that between Cervera's squadron and firing upon the works at San Juan, there is less than any natural connection, because the ammunition expended in the bombardment might be required to fight Cervera with, who, by the hypothesis, might put in an appearance while the bombardment was going on. It seems to me that there may have been some other reason not convenient to disclose in a public despatch. There resulted very little damage to the American ships, and, according to the Spanish accounts, very little damage to the works.

These were the general characteristics of all the exchanges of fire between ships and batteries, so that in a general way one gets the idea that very inefficient batteries were still able to keep ships at a distance, and that the different attacks made were more in the nature of pastime and of keeping the men in practice, than of any serious display of force. There is nothing, so far, to show that naval war has altered.

But the failure of the Cavité batteries and the general failure of the Spanish batteries to contend against the American guns, teaches a very important lesson. There is no commoner belief—sometimes expressed

in so many words—than to say that once a fortification, always a fortification; that while if you built and armed a ship, she would become obsolete, but if you laid out the same money on a fort or battery that had to be ready to contend with ships, that would remain, and not become obsolete. But if there is one lesson more clear than another to be drawn from this war, it is that if you intend to put your strength into defensive batteries, those things grow obsolete quite as fast as ships do. Batteries, such as those required at Cavité, to do their appointed work, cannot be built, and armed, and left. They are only ships on land. As the guns mounted afloat are changed to improve their energy, rapidity of fire, shell-power, and accuracy, so must the guns on shore be changed, if they are to fulfil their purposes; but their purposes are not to prevent the attack of ships upon ports or towns—ships are rarely competent for that service. They should not go further than making hostile ships keep their distance, and offering support and protection to such friendly ships as may on an emergency seek their help.

The rule all over the world in regard to sea-faced fortification has hitherto been—much and bad. What is really wanted is little and good, and it was quite a comfort to read the other day the War Minister's announcement on that behalf. We are practically re-arming the Navy now with the guns designed by the Vickers-Maxim Company, securing the highest energy, the greatest speed of fire, and the utmost accuracy obtainable per ton of gun. Unless—which no one alleges—the whole idea of sea-faced fortification is a mistake, the teaching of the Spanish-American war supports Lord Lansdowne's views on the question of what ought to be done in regard to our own sea-faced works.

But not only was the obsolete character of the Spanish batteries the cause of their failure. The seaman gunner's fire is so superior, because he is always at it. If sea-faced batteries are to be real defences, and not mere receptacles for wasted money, their gunners must be as familiar with the guns as the seaman gunner is with his. Obviously, the proper guns' crews for sea-faced fortifications are local Militiamen, who know no other service but that of the battery to which they are permanently attached, but know that perfectly. Then, but only then, will ships requiring the support or protection of sea-faced batteries in war-time get it.

The popular view was, no doubt, that the United States ships would force, or attempt to force, the entrance of every Spanish harbour. History, however, had not told us to expect such things. It rather pointed the other way, so that the attempt to block the entrance to Santiago by sinking the "Merrimac" was no surprise. If it could have been accomplished, it was a common-sense way of putting Cervera's squadron "out of being," and of relieving the great fleet that it was necessary to keep watching him, to take up more offensive rôles.

But, on the other hand, it was a surprise, even to the most conservative thinkers, that the United States Navy made no attempts to use torpedo-boats to reach harbours by night. So far as I can gather, no torpedo-boat was ever used as a torpedo-boat. The "Winslow," which got so

badly handled at Cardenas, was used as a gun-ship in broad daylight. Otherwise, the torpedo-boats did not come much to the front. The entrances to most of the ports were narrow, and were supposed to be mined; but still, the night attack by torpedo-boats, which has occupied so large a place in our thoughts of late years and was adopted by Japan, was left unillustrated by the American Navy.

Nor, on the other hand, was the defensive power of the torpedo-boat illustrated by the Spaniards. There was originally some idea on the part of the Spanish Government of sending out their torpedo-boat and destroyer force to the West Indies before the war began, but the idea was abandoned. It had seemed to me the one chance there might have been of offering a defence of Cuba. A distinctly gallant attempt seems to have been made, and even renewed, during the destruction of the Spanish fleet at Manila, by extemporised torpedo-boats, to turn the tide of battle. There was a threat of attack in this way also at Santiago. But the Spaniards never had, in opposition to the American ships, any torpedo-boat force numerous enough to have had success. And so, both by way of attack and by way of defence, the torpedo-vessel pure and simple remains just where she was. Admiral Sampson acutely remarked that the absence of the torpedo from the war would undoubtedly throw that weapon back in general estimation, but that the result would be illogical. What may be really thrown back is the use of the torpedo in gun-ships, because of the reported explosion of one in the "Oquendo" as a consequence of shell-fire.

There were two sea-fights in the war: the attack on the Spanish ships at Manila by Commodore Dewey, and that resulting from the attempt of Cervera to escape from Santiago with his squadron. In each of these cases, all the Spanish ships were destroyed, while the American ships hardly suffered at all. The sudden destruction and the character of the destruction, would have been news to us if they had not been foreshadowed by the results of the battle of Yalu. Admiral Sampson, in the interview referred to, brought forward the outbreaks of fire in Cervera's ships as one of the lessons of the war. Without doubt this was so, but the battle of Yalu had already made the lesson confirmatory, and not new. This terrible destruction had no parallel in the days before steam and shells, though we were not unaccustomed to see ships that were mere wrecks and shambles, surrender to conquerors that had not lost a mast or a man. Sinope had later taught what could be done in destruction with shell guns.

But, speaking for myself, I am bound to say that the three battles of Yalu, Manila, and Santiago, have shaken my faith in the historical method more than any occurrences of modern times. I had certainly imagined that surrender would precede destruction, and I had even gone so far as to suppose that it would be killed and wounded that would determine surrender, as it certainly did in old days; and yet here are three battles where there has been no real surrender, and otherwise, all destruction. One of the ablest of my rising naval friends comforts me by remarking that the nearness of the shore has in each of these cases had to do with

the results; and that in a sea-fight out of sight of land, the old rule might remain intact. There may be something in the remark, though some of the Chinese ships, when beaten, went down in deep water without making a sign. And then I am afraid we must allow that we have descended from the courtesies to the barbarities of war. The old rule certainly was that when the result became assured, when prolonging the dispute could but be a waste of life, the commander bowed to fate, and surrendered the fruits of victory to the conqueror. We seem to say now, that the fruits of victory must be denied to the conqueror at all hazards, and that the spirit of the savage under the guise of gallantry, is to dominate. If this is a lesson of the war, I fear it is a very sad one. Perhaps it is my feeling that turns me from this view, and makes me think of other points.

Regarding the pure tactical questions involved, it becomes plain that Dewey quietly took full advantage of the superiority of his guns and his gunnery, and placed himself in so distant a position that neither ships nor batteries could make an adequate reply to his fire. The thing was terribly business-like on the American side, with a pathetic parade of quixotic gallantry on the other.

In the case of Cervera, it has seemed to me, and I think to most of those with whom I have discussed the matter, that his only chance was to have come out of port in close order in line ahead, and to have made at his utmost speed for the centre of the American ships. Sampson was prepared with two orders of battle: single column, and double column, in line ahead. Cervera's chance was that the suddenness of his approach and the compactness of his formation might have found the American fleet not fully formed, so that the fear of hitting friends might have disturbed the aim of the American gunners, and given Cervera a loophole. But the entire failure of Spanish speed must have made almost any plan, however well arranged, futile. In the result, as the Spanish ships came out one by one, and turned at once to starboard to run alongshore, they showed no tactical aim, and left it to the Americans to follow them up as in a general chase, and perfectly free to use their guns to the best possible effect.

Several papers might be usefully prepared out of the full information published by the United States Government, in regard to the value of the offensive and defensive arrangements in modern war-ships as illustrated by these two battles. In this paper, which I hope may be the first of a series to be continued by abler and younger men, I have taken up some of the points in the war that strike me, only to discuss each briefly and broadly; and so these matters of construction and armament, more closely and more immediately interesting, perhaps, than any others, can only be treated after the same manner.

I am sure, however, that we must all feel that the discussion of material pros and cons is much complicated by a profound conviction of the dominating value of the man behind the gun. The overwhelming successes of the American Navy are only in part accounted for by superiority of material. The entire failure of the Spanish guns, whether

fired from ports or ships, to produce an adequate effect on the Americans could only have been due to bad shooting, and this was not wholly the fault of the weapons. The proof is conclusive that if the gunnery is equal on each side, the greater number or the better quality will win, and that the policy we are pursuing is the only true one. But if the gunnery is equal, the inferior guns should do proportionate work, which the Spanish guns failed to do.

With regard to the large amount of destruction by fire, something of the same kind may be said. Thirty-three years ago, Sir Cooper Key, from the result of what seemed adequate experience, formed the opinion that even in wooden ships the danger of fire set up by the bursting of shells was not great. It was not that fires would not be started, so much as that, taken in time, they could be easily subdued. Thus the question arises whether this destructive effect of fire has appeared because it was not taken in time; whether, in fact, it was not a failure of men rather than of material. As more than one of the United States ships was set on fire by Spanish shell, without anything coming of it, we cannot but think of the man behind the gun.

As regards material, my own thoughts are perhaps somewhat crude; but as regards both the fire and pumping services in our ships, my inclination was towards the isolation of compartments rather than of great systems common to all compartments. I never reconciled myself to the main drain, nor to the main fire service of pipes, feeling that in the one case there would in emergencies be an unexpected flooding of compartments supposed to be cut off, and in the other a breach of continuity in the water-pipes. Yet when I had to consider such matters, there was scarcely an alternative. I cannot help thinking that now the dynamo, the motor, and numerous alternative electrical communications, offer conveniences for isolating compartments as to pumping and flooding services, which would enable even prompter action to be taken than under the older systems. The subject has no doubt attracted full attention, and the unquestionable fact that fire is a chief danger will be fully and properly dealt with.

But this fire question raises a point where my own mind long ago set itself stubbornly against prevailing theories of armouring, and has never relented. The original theory was that no armour was better than thin armour; and as we know very well, we worked that theory till we got a side where there was a very small area of very thick armour, and a very large area entirely unprotected. The result I always thought was due to defective logic. Experiments had undoubtedly shown that projectiles which penetrated armour, especially if they broke up, created much greater interior havoc than such as passed clean through thin plating intact. Hence the argument was that there should be no armour except such as would stop everything, and that otherwise everything should be allowed to go through. The logic was sound enough if it could be guaranteed that the enemy would only fire heavy projectiles. But, as the policy adopted left 3-pounders effective, it was inevitable that they would be effectively used. To me the real point always was a



balance between the gun and the armour. If the balance were to be drawn at 3-pounders, it was still a balance, so that the loss due to letting 6-pounders through was compensated by the gain of keeping 3-pounders out; or if the balance were drawn at 6-pounders, then the loss due to letting 12-pounders through was compensated for by the gain of keeping 3-pounders and 6-pounders out, and so on.

The logic—if it was sound—hung upon the assumption that as the gun grew larger, its speed of fire grew less, and its accuracy less; and not only so, but it was certain that a ship of given size could mount more 3-pounders than 6-pounders, and more 6-pounders than 12-pounders, and so on. It was certain, it seemed to me, that there was a true balance somewhere, so that the original system of armouring in “La Gloire,” or in the “Achilles” or “Minotaur,” was nearer to it than that adopted in the “Inflexible.”

Improvements in the manufacture of armour, which have been so promptly and so wisely adopted by our Government, have without question pushed us more away from what I think was bad logic, and more towards what I think is good logic, so that the thickness of armour grows less and the area covered greater; but yet I doubt whether the *principle* has been touched.

I venture to draw from the facts of the two battles the inference that larger areas of thinner armour would at least have left things no worse than they were, and might possibly have given the Spanish ships greater staying power. I have seen it claimed that the “Cristobal Colon’s” staying power—she ran the farthest, and was the last to succumb—was due to her larger armoured area. It would require a special paper to investigate the point.

From the beginning I found my mind recoiling from the idea of the very heavy gun. I always looked here for the balance—some medium weight, and size of gun beyond which it would be illogical to go; as there was thickness of plating beyond which weight could not be extended without loss. The assumption behind the logic was that the sacrifice due to mounting guns above a certain weight overbalanced the gain of mounting them; that as the gun grew larger, the weight of its mountings increased out of proportion, as its speed of fire and its accuracy fell out of proportion.

Just as the improvement in armour has drawn towards the principle of a balance, without, I believe, adopting the principle, so have the vast improvements in guns—and notably the very latest improvements which the Admiralty are adopting—drawn down towards the balance, yet without adopting the theory that there is such a thing. I gather—I may be wrong—that United States officers are inclined to look upon their 8-inch guns as having proved, on the whole, more effective than those of heavier calibre. There is the sense that of course the heavier guns are more effective when they hit, but then it is not easy to get over the record of hits. It may be a mere surmise on my part, but it looks to me as if one of the permanent lessons drawn from the war will be a reduction in maximum calibre.



I think it will be admitted that, up to the battle of Yalu at any rate, construction and armament policy rested on the belief that conquest of ships was to be effected by destruction of stability, propulsive, or manœuvring capacity. It seems to me inevitable that this war has taught us that the conception was too narrow, and that in cases our fears carried us too far. It seems to me that now our ideas are likely to be more general and less special, so that we shall work more by average, and less by isolated data.

A final word must be said on the utter change that has come over the organisation and conduct of naval war. The change was marked in our conduct of the Egyptian difficulties. What was done, whether in principle or detail, was then done at and by the Admiralty. The admirals abroad were pieces played by the Admiralty, and did not—as in old days—play themselves. However far we went in the Egyptian operations, the American Government in the Spanish war left us far behind. Everything was done from Washington, whether it was small or whether it was great. It could not have been otherwise. All the intelligence went to Washington, and the men on the spot never had the information regarding what was round them, that the Secretary of the Navy possessed. Hence, the ships were moved hither and thither from the Office in Washington, and they had to gather what it all meant later on.

It is a momentous change specially belonging to naval war; and to recognise the change is perhaps a chief lesson of the late contest.

Vice-Admiral Sir NATHANIEL BOWDEN-SMITH, K.C.B. :—In considering the late war between Spain and America, one is tempted at first to say that there is nothing to be learnt from it. On the one hand, we have a rich and powerful nation going to war with another nation which is neither rich nor powerful; and the United States, as regards their Navy, were somewhat prepared, whereas the Spaniards were utterly unprepared, as I shall presently show. I think the first lesson, therefore, we learn is, that every nation which wishes to go to war successfully should be thoroughly prepared, and ready to strike a blow as soon as possible after hostilities commence. It appears to me that the second lesson we learn from this war is that the gun is the most important weapon on board a ship; and the third lesson, both from this war and the one between China and Japan, is that all combustible material on board a ship-of-war should, as far as possible, be reduced to a minimum. With regard to preparation, I may remind you that a state of war between the two nations commenced on the 21st April, when the Spanish Minister left Washington; and on the 1st May, Dewey, having his squadron all ready in Chinese waters, appeared off Manila, entirely destroyed the Spanish vessels there, and captured the place, as far as he could do so without any land forces to assist him. As regards the gun being the most important weapon on board a ship, I think we must all acknowledge that the gun during daylight must be the first arm that comes into play in a naval engagement. It is also the only weapon a ship can use when attacking forts or land defences, or when covering the landing or embarkation of troops. But the gun has its drawbacks. Ammunition is very speedily fired away, and a great many shots are fired away to no purpose. We have it on record from the Americans themselves, who examined the destroyed Spanish ships, after Sampson's victory off Santiago-de-Cuba, that although they had fired 6,000 projectiles they could only discover something like 127 hits. Of course, there were some hits that could not be seen, in consequence of the wrecks being partially immersed or partially burnt; but making all allowance, there were a great many shots thrown away, as there

always have been in every action. On the other hand, as my friend Admiral Colomb has told us, the Spaniards practically did little damage to the Americans, by their firing either at Santiago-de-Cuba or at Manila. With regard to the rapid way that ammunition is expended, I would draw your attention to what took place in the action at Manila. Dewey appeared off Manila at 5 o'clock in the morning, I think the first gun was fired at 10 minutes past 5. He engaged the Spanish squadron at rather long range, the Spanish ships meanwhile steaming about under the protection of their batteries, and after an engagement of two hours and a half Dewey drew his vessels off into the middle of the bay, as we were told at the time, to give his crews some breakfast. But a certain Mr. Stickney, an ex-American officer, who was doing duty at the time as Dewey's secretary, and taking notes of the battle, tells us in a recent article that Dewey hauled off after the first two and a half hours' engagement because 'he was getting very anxious about his ammunition. Stickney says that he hauled off really to take stock of his ammunition, and to devise some other plan of attack, because the engagement had lasted two and a half hours and the Spanish ships were steaming about apparently in much the same condition as when the action commenced; and, he adds, the Americans could not have continued the action for another two hours, for want of ammunition. However, shortly after the Americans went to breakfast, two of the Spanish ships appeared in flames, an explosion occurring on board one of them, and when the Americans renewed the engagement they entirely destroyed the Spanish fleet. I think, however, we can well understand Dewey's anxiety about his ammunition when we realise that he was 7,000 miles from his base, or the nearest place from whence he could get a fresh supply. That, I think, teaches us that when a fleet or squadron are likely to be called upon to take action far from their base, they should, in addition to being accompanied by cruising colliers, have also a transport with spare ammunition, spare boats, and other stores likely to be required after an engagement. But though we may think the gun the principal weapon on board a ship, and because we have gained no experience in the late war as regards the ram or the torpedo, I should be very sorry to say that those weapons should not be seriously considered. After the experience we have had during recent years of the damage caused by collisions, and after the loss of the "Victoria," the "Vanguard," the "Oregon," the German "Grosse Kurfürst," which was sunk off Dover, and many other collisions of a more or less serious nature, we must still look upon the ram as a terrible weapon. If these things occur in a time of peace, who can say what would happen in the noise and excitement of a battle? Besides, see what power a ram gives a weaker vessel over a more powerful one. Suppose a weaker vessel, commanded by a gallant man, caught a more powerful ship unprepared, at dusk, or in the early dawn; or suppose a vessel fitted for ramming, commanded by a gallant man and backed up by a good crew, got amongst an enemy's fleet at night, I think he would do some havoc amongst them, knowing that every ship he struck would be an enemy's, whereas the enemy's vessels would probably be mistaking and ramming each other. I agree with what has fallen from the lecturer: if Admiral Cervera had come out and gone straight for the American ships in close order, or tried to escape at night, he might at all events have given an account of some of them before he himself was destroyed. With regard to guns operating against forts, I should like to say this: It often appears to me that the value of the ammunition expended by the ships in engaging a fort generally greatly exceeds the value of the damage done to the fort. There was a certain Englishman in Cuba during the war, Mr. Atkins, who was correspondent, I think, to the *Manchester Guardian*. He examined the sea faces of the forts of Santiago-de-Cuba almost immediately after the place had surrendered, and he makes the remark:—"The fire of Sampson's ships, good as it was, did little more damage than scatter the dust." The same gentleman, also writing about Cervera's attempt at escape from Sanuago-de-Cuba, says:—"Every practicable mistake was

made. The ships popped out like rats from a hole in daylight, and then they turned the wrong way. To the west lay nothing to impede the fire of the Americans; to the east, off Sibbani, lay a crowd of unarmed transports, so that the Americans could not have fired in that direction without injuring their own side." He goes on to make another remark, which I thought was of importance, but one concerning the land engagement. He said one of the lessons of the day was the inestimable value of the smokeless powder used by the Americans. I was rather in hopes that my friend Admiral Colomb would have been able to tell us something about the powder used by the Americans and Spaniards afloat during the war. To return again to the ramming, a certain monarch of a great and powerful country has recently proposed a conference of the various nations to consider the possibility of reducing armaments, or of in some way minimising the horrors of war. When I saw the programme of the matters to be considered, I noticed that one item was that in future it was proposed that vessels-of-war should be built without rams. Whilst respectfully sympathising with the humane instincts which induced the Emperor of Russia to make these proposals, and whilst wishing the conference every success, I certainly venture to hope that our Admiralty, in building their new ships, will construct them with a view to the possibility of ramming, and will take care to strengthen their bows, so that, should they endeavour to ram their enemies, they should not themselves be destroyed. Though we may believe the gun to be the most effective weapon, we must not on that account neglect the ram or the torpedo; if we do so, we may some day when it is too late suffer a rude awakening.

T. MILLER MAGUIRE, Esq., LL.D. :—I think it is only fair to Admiral Colomb that a member of the general public, not a naval officer, or a person pretending to any knowledge of naval technique, should bear witness to the great value of his lecture to persons who find it very hard indeed to get any mastery of the principles underlying naval warfare outside the pages of Mahan's late work. Such a lecture as this is of the greatest possible interest, and I am sure that officers of the Regular Army or Volunteers who happen to be here cannot thank Admiral Colomb too much for the pains he has taken in putting the facts of these various operations of the Spanish and American Navy into a nut-shell. I feel that for me to rise before naval officers and discuss naval affairs is an enterprise almost as foolish as, and far more dangerous than, was that of Cervera with his ill-found squadron attempting to carry on operations in the Spanish Main. I read of one instance in the war, showing the contrast between American energy and Spanish sluggishness. While the Spanish Navy was doing about 7 knots from Spain to the Spanish Main, there was a Yankee ship steaming from California to the same place—I think it was the "Oregon." She left San Francisco about March, and reached the theatre of operations about June, having steamed some 14,000 miles; she coaled four times *en route*, and went into the harbour at Florida at the rate of 15 knots an hour. I note that the last speaker said one of the lessons of the war was to have as little combustible material as possible on board a war-ship. I do not know whether the administrators of the Navy agree with him, but I know that recently some civilian critics have been very warm on this point. I have in my hands a book which supports the views of the gallant admiral. Every one of the Spanish ships was set on fire by the American shells, the crews being forced to spend their energy in fighting the fire when they should have been working their guns. This is a book by Morris. I do not know whether he knows very much about it, but he evidently thinks he does, because he expresses himself very freely. The gallant lecturer spoke about water-tight compartments. I have it in my memory that one particular vessel—I think it was the "Colombo"—collided with a large British steamer, and would certainly never have reached the theatre of operations but for the water-tight compartments. With regard to the forts, this great critic has something to say in regard to them and to the gunnery. He says that had the guns of the Morro—that was at Cienfuegos—I think there were

various Morros, one at Havana, and another at Santiago—but with regard to this particular one, had the guns all been of modern make, and handled by well-trained gunners, the result would have been decidedly different. From their coign of vantage on the harbour hills they could have poured their shells in a devastating stream on to the ships, and driven them from the waters of the channel. The gallant admiral cannot say everything in an hour. Sometimes critics at these lectures blame the lecturer for not saying what he has not time to say, and yet if he speaks five minutes beyond the hour they get restless and leave. There is one point upon which I should like the views of the gallant admiral—that is, the effect on the war of the declaration that coal was contraband. It seems to me that that must have very seriously affected the movements of Cervera's fleet in the West Indies. There was no use in his trying to get coal at our stations. He could only get it in small quantities and bad at French ports. With regard to the general strategy and its analogy to military strategy, this system of covering the whole place with forts, which the admiral deprecates, and the notion of fixing guns in permanent fortifications, came to a head in France immediately after 1870. The engineers took the bit of French strategy in their mouths, so to speak. What is the result? They have some hundreds of forts all over France, which, to be effectually used, would occupy 600,000 men at the beginning of a war; whereas the Germans have few forts and fortresses relatively, and they rely upon their field army to play the same part on land as Admiral Colomb would have the Navy play at sea. There is just one point that comes home to us, and that is, the effect of this war on Europe at large. I remember being at Milan during the war, when the conduct of the Italians towards their own Government, to put it mildly, was somewhat exacerbated by reason of the high price of food caused by this naval war. I am informed that our loaf of bread went up from 6d. to 8d. a quartern; that is to say, every man, woman, and child was paying ½d. more a day for bread, although we were not at war at all. If that be the case, it emphasises what the speaker said about the folly of our not being prepared, because a farthing a day per head with our population is £14,000,000 a year; and with an expenditure of half of that, in addition to the present expenditure, our country certainly would never be reduced to making so ignominious a peace as the Spaniards at the close of the late war. On the part of the civilian and semi-civilian members of the audience, I have to thank most heartily the admiral for his excellent address.<sup>1</sup>

Major A. D. SETON (Forfar and Kincardine Artillery):—I should like to say one thing with regard to the remark of Dr. Maguire about the price of bread. I was in hopes that the lecturer would have referred to the matter. It was a great disappointment to many people, myself amongst them, that we did not learn more from this late war of the effect of a naval war upon our commerce. If Spain had conducted her operations in a common-sense manner, I think we should have learnt a very valuable lesson, which would have been brought home to the people of this country. As far as my reading of the war has gone, Spain appears to have taken absolutely no steps whatever to interfere with American commerce. If she had sent a few vessels capable of stopping an unarmed merchant-ship from any of the ports of the north of Spain to the mouth of our Channel, she might have done herself a very good turn in the disturbed state of Spain on the corn question, and it would have been a very

<sup>1</sup> In regard to coal being made contraband of war by England, Dr. Maguire produced a passage from the recent work by Morris entitled "The American War with Spain," p. 187, as follows:—"As Holland and France had declared coal contraband of war, they could not, under the rules of international law governing belligerents, permit the ships of either combatant to remain in any of their ports longer than necessity demanded, or to obtain more coal than was requisite to enable them to reach the nearest port of their respective nations. Great Britain had also declared coal contraband of war. This rendered it useless for Admiral Cervera to call at any British West India port."



valuable lesson to us. It would also have obliged the Americans to do something in the way of detaching a ship to look after the matter. With regard further to what Dr. Maguire said, I may mention that the price of corn in Liverpool was very seriously affected simply by the rumour of one American ship being stopped. Soon after the war broke out, it was rumoured in Liverpool that the "Shenandoah," an American sailing-ship, bound from San Francisco to Liverpool with wheat, had been picked up by a Spanish ship. The result was that the price of corn jumped up something like 15 per cent. in one day. It was, however, simply a rumour—the ship was never even threatened, and she came into port all right. She was a couple of days overdue owing to head winds. If a few ships had been really stopped, we should have acquired a good deal of practical knowledge of the effect of naval war on our food supplies. There is one other thing I wish to mention, and that is with regard to fire extinction on board ships in action. It seems perfectly incomprehensible how it is that this question has never really been brought up before. Any student of history who goes into the matter has only to go back to the Crimean War, which was perhaps the beginning of effective shell-fire as regards ships, and read the accounts of the attacks on Sebastopol, to find that the ships were set on fire, almost without exception. But the fires were extinguished by the ships hauling out of action. There are many cases mentioned in Admiral Lyons' life, which was recently published.<sup>1</sup> There was also the case of the Turkish ships at Sinope, which were absolutely destroyed by fires caused by shells, because they could not haul out of action to put them out. If it is dealt with in time, it may be done, but I do not see how, under a heavy shell-fire, it is going to be managed. If you take your men from their guns to fire quarters, you cannot reply to the enemy's shell fire. Our ships escaped in the Crimea because they hauled out of action. It is difficult to understand how a man like Sir Cooper Key, whose admirable life, written by Admiral Colomb, many of us have read, could have arrived at the conclusion he did on that subject, in view of the then recent experiences of the Crimean War. It seems to have been absolutely forgotten what the facts were. The same thing practically applies to the balance which Admiral Colomb makes between armour and guns. There is no doubt that the introduction of Q.F. guns has completely altered the whole question of the protection of ships, but the original principles remain unchanged. The view, I think, that Admiral Colomb has taken of the matter from the beginning is absolutely sound. I do not think it ever would have been departed from had it not been that it became a sort of game of "beggar my neighbour" between guns and armour. Immediately the armour was thickened, heavier guns were produced, and immediately heavier guns were produced the armour was thickened still further. The original aim and object of the whole thing was lost sight of. Now we are going back to original principles, and I think the nation which first grasps those principles, and carries them out, will score tremendously in the next naval war. Armour sufficient to keep out the majority of shells, distributed as largely as possible over a ship, will undoubtedly carry her through an action much more securely than thick armour in a few places.

<sup>1</sup> "Life of Admiral Lord Lyons," p. 248 (Bombardment of forts at Sebastopol):—"3.30 p.m. A shell set the 'Albion' on fire, and she had to be towed out of action. An hour later, the 'London' and 'Arethusa' had to follow her example. . . . A shell burst in the side of the 'Agamemnon,' setting her on fire. . . . Seeing the danger she was in, the vice-admiral directed the 'Queen' and 'Rodney' to support the 'Agamemnon,' but the 'Queen' was almost immediately set on fire, and had to haul out of action." Writing on 7th September, 1855, to Sir C. Wood, Sir Edmund (as he then was) Lyons said:—"The day before yesterday a [Russian] frigate in the harbour was set on fire by a shell from the camp, and burned to the water's edge. To-day another frigate has shared her fate. We have just seen a shell fall on the fore-castle of a 3-decked ship, causing a fire which lasted some minutes before they got it under."

Captain J. D. CURTIS, R.N. (Retired) :—I have just a word to say about ships being set on fire at Sebastopol. I was there directly after the action, and from what I could understand it was the "Albion"<sup>1</sup> only that was set on fire. She had half of her crew and officers in the naval brigade, and the crew were very much disorganised on account of want of officers. She was set on fire by a red-hot shot from the Wasp battery, and she could not retaliate as the battery was 800 feet above her. There were four<sup>2</sup> guns in that battery and only two were used in the action. I never heard of any other ship being set on fire.

Major SETON :—I bow with great respect to the remarks of the last speaker, but I would refer him to Lord Lyons' life. It shows that there were at least six different ships besides the one he has mentioned as being set on fire. I know the incident to which he refers, but I think if he looks again he will find more cases than the one he mentioned.

Captain CURTIS :—That book is incorrect in other details; there is a mistake also about the wound Captain Lyons received at Kertch; he was wounded in the calf of his leg when in the "Miranda" in a running action under the batteries at night, and died at Therapia Hospital. I was attached to the "Miranda" in the Sea of Azoff expedition.

The CHAIRMAN (Rear-Admiral A. K. Wilson) :—I told Admiral Colomb, when he did me the honour to ask me to come here to take the Chair, that he must not expect me to swear to every word he said, and I think there are a few things that we ought not to let pass in this paper as the opinion of naval officers. There is a great deal at the same time in the paper that one does agree with most thoroughly. The fundamental point in this paper appears to be that the Americans started on a wrong tack, that their procedure was unorthodox in not sending their ships across to Spain to lock the Spanish ships up in the Spanish ports, and he tells us that that was against the theory of strategists. Well, I think the fact is, that if it is against the theory of strategists it is very bad for the theory. When you come to think what the Americans would have had to do to send their ships across to Spain to blockade ships that were doing no harm to them, you will see that what they did was the right thing. If the Americans had sent across to blockade the Spanish ports, where were they to get coal, and where was their base? Were they to take troops, and if they had taken troops, what were they to do against the whole force of the Spanish Army with European resources at their back? Another suggestion is, that they should have gone to St. Vincent to block Cervera. Surely by the time they got to St. Vincent that admiral would not have been there. As Admiral Colomb says, news flies about. He must have heard of the American squadron leaving, and he would have gone somewhere else before they blockaded him in. And even if they had locked him in, a properly organised squadron of ships of such speed (we know from experience) cannot be blockaded in a port without a large preponderance of force. We know the immense difficulty of it even when we have got a base tolerably near. A squadron once at sea, how are you to know where that squadron goes? Admiral Colomb has told us we shall never get surprises again. Surely Admiral Cervera's action showed us the possibility of surprises. Admiral Cervera went to sea and all Europe was agog to know where he would turn up. Nobody knew where he would turn up next. People were in doubt whether he was a great tactician or simply a duffer. The consequence was that the mere fact of the fleet being at sea kept not only America but everybody on the *qui vive*. The Americans' primary object was the capture of Cuba, and although it is perfectly true that when you want to get possession of a colony or an island it may be very

<sup>1</sup> The "Albion" was towed into action by the "Sphinx" lashed alongside, also towed out by her. She anchored the day before and had her fore orlop full of shell for the fleet; it was well she was not struck with a hot shot.

<sup>2</sup> See Kingleake on the Crimean War.



often the case that your easiest way to do it is to go and attack the mother country, or blockade the mother country's ports; yet in this case, where the country they wanted to take was at their doors, with a good base of operations at Key West, close to them, it would have been surely utterly wrong for the Americans to have taken their fleet across to Spain to try and coerce the Spaniards there. The insurgents were in Cuba ready to help them, and what would have been the sense of going across to Spain to try and coerce the Spaniards there into peace? After they had taken Cuba, if the Spaniards had not come to terms, it might have been a question of going across to Europe to exercise greater force, and then they would have been able to do it without any risk to their long tail of colliers and transports, which they would have behind them. That is a difficulty in keeping a close blockade of an enemy's port at a great distance from your own base, the enormous train of colliers and supply ships that you have to keep going to keep you supplied. You must also not only have that, but you must be able to capture a port of some kind in the neighbourhood where you can shelter your ships, because it is only under exceptional circumstances that you can coal them in the open sea. That is the principal point, I think, about this strategy. There is a question about sheathing ships that he has called attention to, and as he has put what is a very popular idea of the question, I should like to answer it, although it does not bear very closely on the question of the Spanish war. The argument that Admiral Colomb takes, and which is very commonly taken, is that when you sheathe ships you merely take off a quarter of a knot or half a knot, and that that is given back in a few weeks by the saving of the fouling of the bottom. Now the real problem is this: if you sheathe a first-class cruiser, you add about 500 tons to her displacement, and you add about £40,000 to her cost. It is not a question of merely putting the sheathing on a ship that already exists. If you take that spare weight and that £40,000 and put it into something you want, you get a very much better ship. If you take, for instance, those of the "Cressy" class, which we have for very good reasons sheathed, and suppose that we had sent them to sea without sheathing, we should have £240,000 to spend on a second-class cruiser to go with them; or, if instead of that, we chose by spending all that money to give those ships increased armour, we could give them perhaps 200 tons of armour; or, if we chose to design a new ship which we could give more powerful engines to, we should probably get an increase of speed of a knot or more. It is those considerations you have to take into account; not simply the bare case that is put here. Another thing that bears on this question which people do not generally know, is that sheathing is nothing like a perfect protection against fouling. Many ships that I have had reports of recently that are sheathed have fouled quicker than steel ships. Although copper when first put on is a first-rate preventive, and answers exceedingly well, it has been found that after a certain time, under certain conditions—conditions which I cannot tell you—it fouls very quickly. The "Barfleur" is an example. When she was in the Mediterranean (she is a sheathed ship) she fouled considerably quicker than the steel ships. Eventually we had to paint her over with composition to prevent her fouling. One of the lessons we are told we have to learn is the precaution against fire. That is no new question. That is a question which has been before the Admiralty for a very long time. The wood has been reduced in ships to a very great extent, and the reason that any is being used is for the comfort of the people that live in the ship, and for that reason a certain amount of wood is very necessary. The point I want particularly to bring to your notice is, that the reason the Spanish ships burnt is that their decks were plain wooden decks laid on the beams of the ship, and not over a steel deck. If you want to light a fire, you put the wood on a grate; but if you put the wood flat on a stone floor, and try to light it there, you will find it will not burn. Our ships have all steel decks with a wooden deck placed on top of it, and it is one of the most difficult things to light you can find. So difficult is it that in several of the photographs I have seen of the Spanish

ships, although you see every scrap of wood burnt away off the beams of the ship, where there is a plating underneath the decks, like there is round some of the gun mountings and places of that sort, you see that in spite of the fierce fire the planking is left intact. I mention these things because we are told we must learn a great many lessons, many of which are not borne out by the facts at all. You must go into each case thoroughly before you accept it as a true lesson and attempt to apply it. The lessons we do learn, I think, from this war are, first of all, what everybody knew before—the immense value of the riches and resources of a country. We see the rich American country pitted against a miserably poor bankrupt country like Spain. But greater than that, I think, is the energy and perseverance and determination of the race. I have not the slightest doubt that if the Americans had been turned into Cervera's ships, in bad condition as they were, they would have made a very good fight for it. It is the energy and the enterprise of the race, of which we hope we may have our share as members of the same race, that, I think, is the greatest factor in the success of the Americans.

Vice-Admiral COLOMB, in reply, said :—The earlier speakers were all so much in agreement with me, that I do not think there is anything left for me to answer. Dr. Maguire mentioned the slow speed of Cervera. I think it was not intentional, but partly due to bad engineering. Certainly the extremely foul bottom of the "Vizcaya" must have been responsible for the fact that they could not get speed on her. With regard to coal being contraband, I have not come across anything bearing on coal as contraband of war. I do not think that the refusal to supply coal in a neutral port to a vessel is a question of contraband. I think the laws of neutrality make you refuse him more than a sufficient supply, and the question is not one concerning coal alone, but water or provisions, or stores of any kind.

Dr. MAGUIRE :—The British Government, as distinguished from other Governments (if I am not wrongly informed), declared that, as far as they were concerned, coal was to be contraband of war.

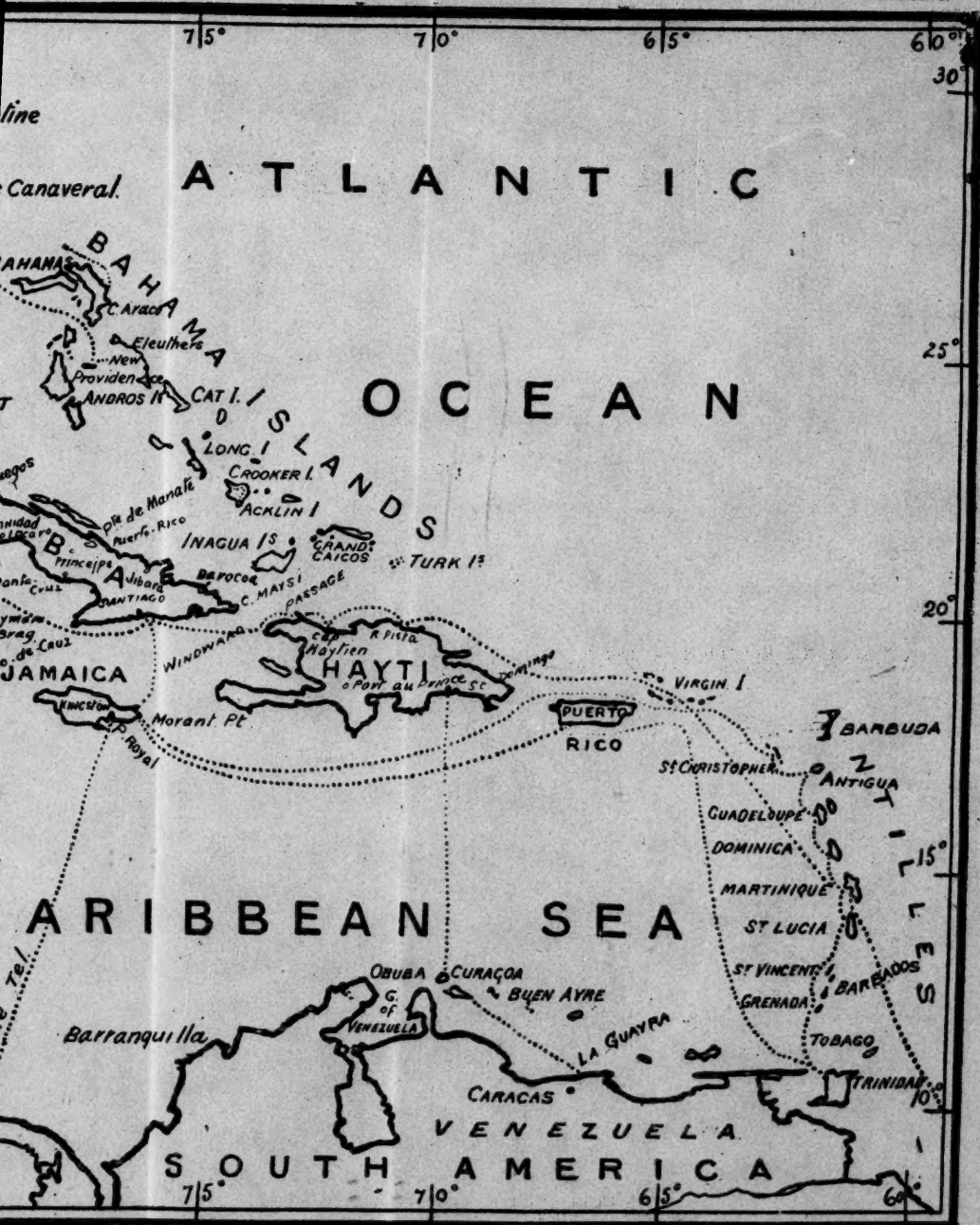
Vice-Admiral COLOMB :—I have not looked at it from that point of view. My friend Admiral Bowden-Smith has added a very important series of points to my lecture which will elucidate much which, for fear of being too long, I had to leave out. I am very much obliged to him for what he has said. The question of the effect of war on the price of corn I have not seen touched upon, and therefore I have not touched upon it myself. In point of fact, I have only taken up some of the broader questions ; but my impression is that the greater part of the rise was due to the cornering of the corn at the beginning of the war.

Major SETON :—I did not refer to that time, but to a later period.

Vice-Admiral COLOMB :—They were on the way towards cornering at that time, I suppose. I agree with much of what the Chairman has said, but he takes, as he has a right to do, the other side on the broad question of strategy. I surmised, as I pointed out at the beginning of my paper, the line I supposed the Americans would adopt, and I also published it before the war. At the same time I do not think that made it right. As I have said in the course of my paper, it turned out all right, but I do not think it would have done so had the Spaniards been somewhat stronger and more able to use what they had got. I must correct my friend to a certain extent. It is not the theory of strategy that I am treating of ; I am treating of what the universal practice has been—what has always been done when things have been successful. Omitting to keep observation of your enemy's ships has always led to trouble whenever it has happened. Whether, as the Chairman says, it would have been possible to keep a watch on Cervera's squadron while it was assembling is a point for argument, as of course every question of that sort from first to last is a matter for argument. It is a question of what is best on one side and what is best on the other. But I think, in spite of what has been said, that it was made perfectly clear that at least it was a dangerous thing for





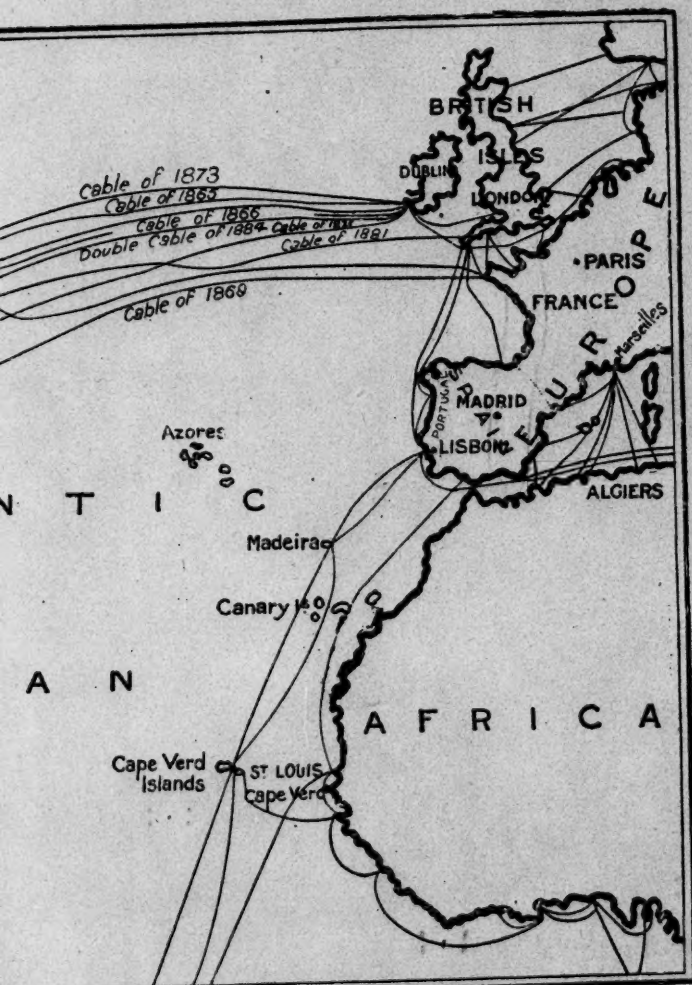






J. J. K. & Co., London.

PLATE 6.





the Americans to have none of the enemy's ships under observation. It might have turned out very badly for them. I must again draw your attention, as I did in the paper, to the distinction between blockading and watching. It is watching we want—ships able to follow up the observed ships and report on them. The Americans need not have gone so far as I have suggested; they might, without taking heavy forces over to Spain, have used their fastest cruisers with fast colliers accompanying them. I apprehend they would have got notice of what was being done, and would have known the actual progress of Cervera's fleet long before that fleet came near the West Indies. With regard to the question of surprises,—if you look carefully at what I said, you will find the surprise that I am referring to, is the surprise that you cannot avoid. In the case of Cervera, the surprise, such as it might have been, was avoidable, had the Americans placed ships in observation. But the reason it might have been a surprise was simply because they were not watching, and did not know where the fleet was. That kind of surprise, I take it, ought not to be common in war if all is properly managed. I am glad to hear what the Chairman has said about sheathing. I do not in the least deny that every question of this sort is a compromise. No doubt you do increase the displacement and increase the cost of your ship, and you might do something else with the money. But I am bound to retain my own opinion that, upon the whole, the money is always well spent on copper sheathing. But my knowledge of what has been going on since copper sheathing was adopted for steel ships is a minus quantity. I only give you here for discussion what my views are on that point. I wonder whether there was any galvanic action discovered where the fouling has been considerable.<sup>1</sup>

THE CHAIRMAN :—I do not know of any.

Vice-Admiral COLOMB :—I have only to thank you very much for the kind way in which you have listened to and discussed this paper.

THE CHAIRMAN :—I am sure, ladies and gentlemen, that it is your wish that I should propose a vote of thanks to the lecturer for his kindness in reading the paper. I am certain we have had a very interesting afternoon.

---

<sup>1</sup> I see I left out one of the chief considerations which compel me to favour universal sheathing, even at the increased cost, and nominally reduced speed. It is that in war we should never be able to allot to the sheathed and to the unsheathed ships the tasks for which we might consider each most suitable. We should have to take them as they came, without reference to whether they were more or less suitable for the service required. It is still the policy of average, for which I have long contended. Nothing should be adopted in war-ships that is very good for one set of conditions and very bad for another set. We should strike an average, and be content therewith. And I believe that sheathing forms the average between a very clean and a very foul steel bottom.—P. H. C.

## BRITISH CAVALRY.

*By a Cavalry Officer.*

THE recent debates in the German Parliament on the proposition of the Imperial Government to increase the peace effective of the Army have drawn attention to the importance attached to cavalry by the chiefs of the German Army. The War Minister plainly stated that the policy of his Government is to maintain as many squadrons during peace in full efficiency as it can afford, and pointed out to his critics how Russia has carried out the same plan, and how formidable an army of cavalry stands ready on the eastern frontier of Prussia.

While this policy is pursued by Continental Powers, exactly the opposite opinion appears to prevail in this country.

In the Colonial and petty wars which we have waged in this generation, cavalry has played an insignificant part. It has become the fashion to consider incongruous the idea of Dragoon Guards and Hussars fighting in a jungle, and so-called mounted "infantry" has been called into existence to do the work of cavalry on these expeditions, thus excluding cavalry leaders from their share of the experience and promotion derived from them. It is certain that the persons best qualified to form an unbiassed opinion on our military institutions, namely, those foreign leaders who in the ordinary course of events might be pitted against us in war, are at no pains to conceal their wonder at the inferiority into which the first horse-owning and riding nation of the world has suffered its cavalry to sink relatively to the rest of Europe.

That this opinion is generally held as to the quality as well as to the quantity of our cavalry among competent foreign critics, no one who has carried his enquiries beyond the usual platitudes of courtesy interchanged can doubt, and it is proposed very briefly to discuss some of the reasons on which this unfavourable judgment is based.

To begin with, it is incontestable that the organisation of the British cavalry is bad, even very bad; and that, in spite of the facility with which it finds recruits and the large proportion of it which serves at home.

Without discussing our organisation in detail, some of the points in which it fails and in which reform is most essential are easily sketched.

The squadrons receive their recruits at no stated time of year, but by ones and twos as they happen to enlist, and there is no proportion maintained between the trained and untrained men. The lately-formed reserve squadrons have not been able to serve the purpose of giving all the recruits their first training, because the number of recruits is at times so large that they have to be distributed through the other squadrons, and because the reserve squadron includes so many men who are employed otherwise than in learning to be cavalry soldiers.



No lasting improvement in our system of training can take place until squadrons are as really commanded by their nominal chief as is a battery of artillery. The number of men "regimentally employed," musicians, tradesmen, waiters, and so forth, in each regiment of three squadrons, is amply sufficient for six squadrons. No fighting unit can become efficient, however zealous and industrious its officers may be, while it is swamped with recruits and young horses all the year round.

Our men enlist for seven years, consequently no squadron should have over one-sixth of its strength untrained recruits at any time, and by a certain time of year every man in each service squadron should be a trained soldier. This, of course, can only be done by separating the Indian dépôts from the units at home, or at any rate by attaching these dépôts as separate squadrons under their own officers.

Most officers will agree that this had better be done, for under our essentially regimental plan no good can be expected from mixing men of different regiments. Our whole system hinges on the principle of keeping the corps intact and separate.<sup>1</sup>

The problem of re-organising the British cavalry is not without its difficulties, but compared with many problems of administration it is a simple one, and should not long block the way. We are too fond of dwelling on the peculiar difficulties of our military situation, and too apt to forget how little we turn to account good material such as no other country possesses. For what nation has such raw material as Britain either for cavalry officer or trooper; and where else is there so perfect a training ground for the inherent qualities of the leader as the hunting field in England and Ireland?

It has been roundly asserted that the training of our squadrons is devoid of interest and lacking in objective. The initiative and resourcefulness of the young officer is repressed and discouraged rather than cultivated; for years he does nothing but superintend the execution of a routine, unless he is selected to be the adjutant of his regiment. There is a limit to the time, energy, and patience which can be exacted from any body of men, and that limit is more quickly reached in a voluntary Service such as ours, where the officers are conscious of sacrificing their interests to the Service, and the rank and file are well aware of their own value, than in the national and compulsorily recruited Armies of the Continent. For this reason it is most necessary in such an Army as ours to be economical and reasonable in the demands on the troops, so that everything useful may be learnt, while nothing that is useless wastes their time.

In every Army a higher standard of professional excellence is expected of the cavalry officer than of the leaders of the other arms. For what are the duties which fall to him? In peace to train and mould his men, and to raise them to a far higher pitch of skill and individual

<sup>1</sup> This applies more strongly to the men than to the officers. The Service would probably gain if a certain interchange of officers between regiments took place. Exchanges have practically ceased, and most officers spend their whole career in one regiment.

intelligence than is elsewhere required of the private soldier. In war the junior officers of cavalry will be constantly employed on patrol work, the correct execution of which needs a thorough knowledge of tactics and a sound comprehension of strategy, besides the individual qualities of energy, dash, and wit.

It is a commonplace, that on the successful accomplishment of the task of an officer's patrol the fate of many an Army has depended. The skill requisite for such performances can only come of knowledge, and such knowledge will only be acquired by young officers if it is taught and encouraged by their seniors. Whether they possess it or not will generally depend on whether they are professionally benefited by it or not. So long as the test of a cavalry subaltern's worth consists in repeating by rote those pages of the Drill-Book which deal with what is called "Increasing and Diminishing the Front," he will not, if he is wise, trouble his head with more profound knowledge, which, however, does not pay at inspections, where his value is assessed.

These considerations lead one to regret that our cavalry is, for the purposes of inspection and higher command, under two officers only: the inspector-generals in India and at home. These officers are expected to report from personal knowledge on each officer in their command. With all the energy, zeal, and impartiality in the world they cannot do it. Twenty-four to thirty squadrons, quartered well within a general's reach and under his constant observation, is the greatest number that one leader can really superintend.

To place one man over 160 squadrons scattered over the Indian peninsula, with five months only of the cool season to make their acquaintance, is to demand the impossible, and great harm is certain to be the result. The recent organisation at home of four cavalry brigades is an admission of the fact, but the remedy is too partial. Moreover, both the brigadiers and the regiments in their command are constantly on the move.

Let us consider the purpose for which our cavalry exists, and the task it will have to perform in war. It is of a twofold nature:—

Firstly, to join in punitive expeditions against the tribes on our frontiers, such as Arabs, Afridis, and Boers.

Secondly, to play a part in a European contest, either in defence of these islands, or on the offensive to assist a Continental ally or coalition.

For the first of these objects, fighting in wild countries, great mobility, tactical adaptiveness, initiative among the leaders, and, to descend more to detail, a thorough development of the fire power of the arm, are essential.

For the second rôle, of meeting a European foe, the same qualities are essential, with the additional necessity of being able to fight and march in masses, and to be abreast of the tactics of the first military nations of the world.

Part III. of our Cavalry Drill-Book lays down the following excellent precept:

Nothing which is not simple can be successfully done in war, and accordingly, what is simple must alone be taught and practised in peace. "No exercise should be learnt on the drill ground which is impossible of execution on the field of battle."

Nothing could be more practical, or more in the true spirit of cavalry action. Several pages of drill follow, however, which cannot be said to comply with the principle announced, and it has so happened that an altogether fictitious importance, an importance out of all proportion to any practical purpose which it serves, has been given to this part of the Regulations. We refer to the ten pages devoted to what is known as "Increasing and Diminishing the Front."

The object of these instructions is to teach a cavalry force to form a column of route, and in all Armies they are of the simplest nature, as befits a movement which should be so easy as to be no tax on the memory or intelligence whatever.

We have, on the contrary, still in our Drill-Book a number of route formations extremely complicated to learn and perplexing to remember.

What a Russian peasant recruit can be taught in a few days thus occupies our men as many weeks; a large proportion of the short time annually at the disposal of the squadron commander is similarly expended, and, worst of all, it absorbs the attention of subalterns and N.C.O.'s just before every inspection instead of work of a practical kind.

We have no less than three separate formations for column of route in our cavalry, each based on absolutely different and conflicting principles, where one is amply sufficient.

To come to the recruit's drill on the square. It cannot be seriously contended that the pains and time expended in teaching him the manual and sword exercises correspond in any degree to the skill he thus acquires as a fighting man.

The drill of the squadron in the field has been immensely improved and simplified in recent years, though here again we can hardly be said to be keeping pace with our Continental rivals. The most important part of the mounted soldier's training, wherein his individual intelligence and instruction makes itself most felt, is unquestionably the service of information and security.

Pages 283 to 356 of the Drill-Book deal with the subject under the heading of "Manœuvre," and in the main these regulations are good, though somewhat too anxious to provide for every contingency with detailed instructions. It is the practice of these duties which is open to criticism.

Not only is the individual instruction of the trooper neglected or confined to teaching him the Drill-Book by rote, but the art of patrolling is almost unknown in our cavalry. *And yet patrolling is much the most important service cavalry can render to its side in war*, and it can be well done by cavalry which fights indifferently and which is for other purposes poorly mounted. On the work of small patrols, from officers' patrols far ahead of the Army to the patrols of two or three troopers which scour the by-ways and keep up communications between marching columns and

ensure the co-operation of combined movements of all sorts, the success of many a battle will hinge. The failure of the Saxons and Prussians to keep up communication and combination on the open fields west of St. Privat on the 18th August, 1870, and the consequent disaster to their arms, should not be recorded for us in vain. In every Continental Army patrolling is carefully taught. Cossacks, Boers, and Afghans excel at it.

The system of cavalry outposts which we practise is that known as the "cordon" system, and it is learnt with great precision. It consists of a continuous chain of look-out posts in sight of one another and formally linked to their supports and reserves, thus covering with a fan-like formation the whole front which it is intended to watch.

Although patrolling is also recommended and even insisted upon, no great reliance is evidently placed upon its results; or why should it also be necessary as a normal formation to wear out our forces with a cordon of videttes as well?

Of course, cavalry may, under very exceptional circumstances, be compelled to furnish such a chain of outposts, but it would normally be the task of infantry, and we learn the rare exception as the ordinary process. The scheme for reconnoitring is open to the same kind of objections, and is in reality the outpost formation set in motion. We sweep the country with a net through whose meshes small fish can easily penetrate unnoticed, while the brigade or division thus formed is so effectually dispersed that a concentration to meet a cavalry attack is practically impossible.

General de Gallifet has well described this vain attempt to be strong everywhere as the "paralysis of true cavalry action." A force of cavalry can be easily ruined if too much be asked of it by its own commander. The bare necessity in war is extremely exhausting to man and beast. Nothing beyond it should be attempted or practised in peace. Initiative in the leaders, intelligent co-operation in the troopers, are vital to success, but these qualities will never be developed by unsound tactics and unreal situations.

It is most unfortunate that we cannot in England canton troops in villages. To take up such quarters after dark, to arrange for their protection, and to rapidly re-assemble from them before it is light, as we should almost invariably have to do in war, requires considerable practice. With our present organisation the difficulties of teaching men to patrol and reconnoitre are almost insuperable. All the winter, when such duties are taught in the Continental Armies to the trained men while the recruits and young horses are receiving their early education, our squadrons are strangely weak. One squadron is "struck off duty" for equitation drill; a considerable number of men in the other squadrons are on furlough; a still larger number are with the regiment, but owing to their special duties are not available for mounted instruction in the morning; so that the squadron commander, after vain attempts to collect some portion of his command to teach them the most essential of their duties, soon accepts the inevitable and sends his men out morning after

morning, riding one horse and leading two, to "watering order under the orderly officer" along the lanes, as the only method of getting his horses exercised and keeping them in health.

To launch into criticism of the stable management and horse management of our cavalry would carry the length of this paper beyond bounds. It may be noticed that our men spend more time in the stable than any other cavalry, and that there exists no systematic plan for gradually bringing the horses of a regiment up to a state of working fitness. Normally they are kept fat and sleek in light exercise; fitfully they are worked harder than usual, though never so hard as European cavalry is worked at manœuvres, consequently the number of horses in every squadron which have a "screw loose," and which could not be relied on to stand the continuous strain of active service, is too large.

It is not yet realised in England that the effective strength of a cavalry force is limited not by the men it can muster—there are generally plenty of them—but by the number of horses it can count on to carry a trooper in marching order 30 miles a day for a week on end with short rations and scant comforts. The value of an Army depends to a great extent on its offensive power, since the side which resigns itself to passive defence is always finally defeated. No Army will, however, be formidable in offence if it be lacking in aggressive initiative, if it loses mobility, and has to grope in the dark for want of good cavalry and the true spirit of cavalry action.



## NAVAL NOTES.

HOME.—The following are the principal appointments which have been made: Rear-Admiral—L. A. Beaumont to command of Pacific station. Captains—T. P. Walker to "Warspite"; R. N. Gresley to "Melampus"; A. T. Carter to "Indefatigable"; G. A. Primrose to "Talbot"; F. R. Pelly to "Psyche." Commanders—C. F. Thursby to "St. Vincent"; Hon. H. A. S. Stanhope to "Beagle."

*General.*—The first-class cruiser "Warspite" was commissioned at Chatham on the 28th ult. by Captain T. P. Walker as flag-ship of Rear-Admiral L. A. Beaumont in the Pacific. The first-class cruisers "Orlando" and "Aurora" left Portsmouth and Plymouth on the 3rd and 4th ult. respectively for the China station. The third-class cruiser "Phœbe" arrived at Plymouth from the West Coast of Africa on the 8th ult. and paid off at Devonport on the 22nd ult. The third-class cruiser "Comus" left on the 11th ult. for the North American and West Indian station. The second-class cruiser "Talbot" arrived at Spithead on the 18th ult. from New York, with the remains of the late Lord Herschell on board; after making good defects, etc., she will return to the North American and West Indian station. The new third-class cruiser "Pegasus" left on the 18th ult. for the South-East coast of America. The first-class cruiser "Edgar" left Plymouth on the 20th ult. with a new crew for the first-class battle-ship "Royal Oak," which is to recommission at Malta. The first-class cruiser "Terrible" arrived at Plymouth on the 18th ult. from Malta with relieved men; during the run home, when steaming at economical speed, about 15 knots, across the Bay of Biscay one of the tubes of one of the port boilers burst, the scalding steam which escaped causing the death of one stoker, Edward Sullivan, and severely injuring a leading stoker and four other men. Four other tubes had also given way during the cruise; they were all welded, instead of being solid-drawn, and to this cause the unfortunate accident has been attributed, although there are rumours that the tubes had not been properly scaled, which may also have contributed to bring about the disaster.

*Steam Trials.*—The new third-class cruiser "Pomone" has successfully concluded her trials; at the eight hours' natural-draught run the engines developed 5,540-I.H.P., 540 over the contract, while a mean speed of 20·2 knots was maintained, and this in spite of the fact that the weather was very boisterous, with a nasty sea running; at the four hours' forced-draught trial the engines developed 7,340-I.H.P., while the mean speed was 20·8 knots, or four-fifths of a knot over that estimated; her machinery is by Messrs. Penn and Sons, and out of the six of this class, which have had their trials, she is the first which has passed through the ordeal without a hitch; her water-tube boilers are of the Blechynden type.

An interesting experiment, according to *Engineering*, is to be made in the first-class cruiser "Amphitrite," of 18,000-I.H.P., which will go on her steam trials during the course of April, with the view of securing the advantages of triple-compounding in the working of the auxiliary machinery, and thus of reducing the coal consumption of these engines, which, in the case of the sister cruiser "Argonaut," proved to be 22 per cent. of the total when the machinery was working at one-fifth power—3,500-I.H.P. It is intended instead of passing the exhaust from the feed-pump to the condenser, to use it in the centrifugal pumps. In the feed-pumps, owing to their heavy duty, the pressure requires to be constant with a high terminal pressure, and as the centrifugal pumps are usually designed to be



in excess of condenser requirements, so as to be able to undertake heavy duty in case of fire or other emergency, there will be sufficiency of steam pressure from the feed-pump. To obviate fluctuations a receiver will be provided between the two pumps, with an escape valve, so that any excess will be provided against, and to prevent clutter this will be of the piston type. The steam, after doing duty in the centrifugal pumps, will pass to the distiller and not to the condenser. The exhaust from several other auxiliary engines, fans, bilge-pumps, etc., used on the trial will also pass to the distiller, so that no live steam from the boiler will be used in the latter. It will certainly be interesting to compare the results with those of other ships worked in the usual way, with live steam for all auxiliaries and for the distiller, which latter usually requires such a large proportion of the main steam supply for making up losses in the feed water.

Great interest is being taken in a series of trials which the gun-boat "Sheldrake" is undergoing to test the working of the Babcock and Willcox type of water-tube boilers. The "Sheldrake" is the only vessel in the Navy fitted with these boilers, and the trials, which will extend over several weeks, are to be made the basis of a comparison between two types of water-tube boilers, viz., the Belleville and the Babcock and Willcox. In 1895, the "Sharpshooter" was fitted at Devonport with a set of Belleville boilers, and underwent precisely similar trials to those which the "Sheldrake" is now engaged in, using six of her eight boilers. The relative merits of the two types of boilers as coal economisers, and their suitability generally for the naval service, will be watched with much interest.

The "Sheldrake" has completed two out of nine trials, each of 1,000 miles continuous steaming under ordinary service conditions, at various I.H.P. from 1,500 to 2,100, using only three-fourths of her boiler power, so as to correspond with the proportion of power used by the "Sharpshooter." The first run took place between Plymouth and the Isle of Man, commencing at 9.30 a.m. on 28th February, and ending at 1.30 p.m. on the 3rd ult. With three out of the four boilers at work an average of 1,500.3-H.P. was registered, giving a grate surface of 189 square feet, and a heating surface of 6,528 square feet. The coal consumption worked out at 12.31 per square foot of the grate surface, and 1.61 per I.H.P. The amount of coal burnt during the run was 71 tons 14 cwt., but there is every reason to believe that during the three further runs at 1,500-H.P. the coal consumption will be further reduced. The engine-room staff had had no previous experience with this type of boiler, but quickly adapted themselves to the system, and the result of the first run was in all respects satisfactory, especially in the matter of coal consumption. The efficiency of the boilers was better at the end of the run than when it commenced, and apparently the boilers could have continued steaming as long as the coal lasted, with the efficiency fully maintained.

A report of each trial, with observations thereon, is to be forwarded to the Admiralty for the purpose of comparison with the corresponding trials of the "Sharpshooter." The vessels are sister ships, but whilst the "Sheldrake" has a stowage capacity of 180 tons, the "Sharpshooter" has accommodation for only 135 tons.

The second trial was made between the English Channel and the Bay of Biscay, and was also run at 1,500-H.P. The sea was smooth, but the trial was somewhat handicapped by winds astern, which reduced the draught in the engine-room. During the trial the "Sheldrake" put into Weymouth to make good slight defects to the engines which were in the vessel before she was fitted with water-tube boilers. The trial was eminently satisfactory as regards economical coal consumption, which is the main result to be determined by the series. With three-fourths of the boiler power at work there was a grate surface of 189 square feet and a heating surface of over 6,500 square feet. The quantity of coal burnt worked out at 12.67 lbs. per square foot of grate and heating surface, and 1.6 lbs.

per I.H.P. The speed was 13·8 knots per ton of coal, and an average of 14·7 knots for the H.P. The boilers are set at 200 lbs. to the square inch, but only 120 lbs. of steam were applied to the square inch. The total coal consumption was slightly less than the 71 tons 14 cwt. burnt on the previous run. The boilers showed no ill-effects whatever, and the engine-room and stokehold hands displayed a better knowledge of the working of the boilers than during the preceding run. There will be another trial at 1,500-H.P., followed by two at 1,800-H.P. two at 2,000-H.P., and a concluding one at a higher speed.

*Launches.*—The first-class battle-ship "Implacable" was launched at Devonport on the 11th ult.; she is of the same type as the "Formidable," which was launched at Portsmouth in November last, and the "Irresistible," launched at Chatham in December. Her principal dimensions are as follows:—Length between perpendiculars, 400 feet; beam, 75 feet; load draught—26 feet 3 inches forward, 27 feet 3 inches aft; load displacement, 15,000 tons. The side armour will consist of Harveyized steel 9 inches thick, joined by two armour bulkheads, thus forming a complete belt round the vital portions of the ship. There will be two protective decks, one being on the turtle-back principle, which will start from the lower edge of the armour belt. The main armament will consist of four 12-inch wire guns of a new and improved type, mounted in pairs in two barbettes protected by 12-inch armour. There will also be twelve 6-inch Q.F. guns of a new type mounted in casemates protected by 6-inch armour, besides sixteen 12-pounder Q.F. guns, six 3-pounder Hotchkiss Q.F. guns, and eight Maxim guns. The vessel will be fitted with four submerged torpedo-tubes 18 inches in diameter. Her engines, which are being made by Messrs. Laird Brothers, of Birkenhead, are of the triple-expansion type, and will develop 15,000-H.P., and there will be 20 water-tube boilers on the Belleville principle. When in commission she will have a total complement of 773 officers and men.

On the same day was floated out at Messrs. Laird's works at Birkenhead the new first-class battle-ship "Glory," one of the "Canopus" class, whose completion has been much delayed by the engineering strike of two years ago. Her dimensions are as follows:—Length, 390 feet; beam, 74 feet; mean draught, about 26 feet 6 inches; with a displacement of 12,900 tons, a freeboard forward of 22 feet 6 inches, and aft of 19 feet. Her engines are to develop 13,500-I.H.P., and her calculated speed is 18½ knots, while she has stowage for about 2,000 tons of coal. Her armour is of 6-inch Harveyized steel, and a protective deck from the lower edge of armour covers machinery, magazines, and other vital parts. Her armament will comprise four 12-inch guns, mounted in pairs in barbettes protected by 12-inch armour; twelve 6-inch Q.F. guns in 6-inch armoured casemates, ten 12-pounder Q.F., six 3-pounder Q.F., with 8 machine guns; and four submerged torpedo-tubes for 18-inch torpedoes. The main propelling machinery (constructed at the Birkenhead Iron Works) consists of two sets of engines of the triple-expansion inverted type of the latest design, each set in a separate engine-room. The cylinders are:—High-pressure, 30 inches; intermediate, 49 inches; and low-pressure, 80 inches in diameter respectively, with a stroke of 51 inches. The 20 boilers are of the Belleville type (with economisers), working at a pressure of 300 lbs., and placed in three separate water-tight compartments.

The first-class gun-boat "Britomart" was launched from Messrs. Potter's yard at Liverpool on the 29th ult. Her dimensions are as follows:—Length, 180 feet; beam, 33 feet; draught of water, 8 feet; with a displacement of 750 tons. The engines are to develop 1,300-I.H.P., giving a speed of 13·5 knots. The armament will consist of two 4-inch and four 12-pounder Q.F. guns.—*Times and Naval and Military Record.*

*The Report of the Medical Director-General of the Navy for 1897.*—The returns of 1897 for the total force serving afloat may be regarded on the whole, as

very satisfactory, for, notwithstanding the increase in the ratios of cases, invalidings, and deaths, on the Cape of Good Hope and West Coast of Africa station, and in the irregular force, mainly due to the large amount of remittent fever contracted during the operations against the King of Benin, the aggregate number of cases of disease and injury recorded for the year shows only a ratio of 894·81 per 1,000, which is a decrease of 16·26 compared with 1896, and of 71·32 per 1,000 when contrasted with the average for the last ten years, thus being the lowest obtained since the year 1856, when these reports first appeared in their present form.

*The Total Force.*—The death-rate of the total force, viz., 5·23 per 1,000, is '05 less than that of the previous year, and that 1·62 below the ten years' average. It is also the lowest recorded since 1856. The invaliding rate, however, shows an increase of 4·62 per 1,000 over that of 1896, and of 5·44 when compared with the average ratio for the last ten years. The greatest increase occurred on the Cape of Good Hope and West Coast of Africa station, where it amounted to nearly 31 per 1,000 of the force employed, and is attributable to the cause already referred to.

Thirty-three cases of wounds in action are returned, of which two were invalidated and eight proved fatal. They all occurred on the Cape of Good Hope and West Coast of Africa station during the warlike operations at Benin.

Four cases of yellow fever are reported from the North American and West Indian station, resulting in one invaliding and in three deaths.

No case of bubonic plague is returned.

There has been a considerable increase in the number of cases of enteric fever on the Mediterranean station, chiefly contributed to by an outbreak of the disease which occurred on board the "Forte" at Phalerum Bay.

The total force in the Service afloat, corrected for time, in the year 1897, was 80,540 officers and men, of whom 47,720, or 59·25 per cent., were between the ages of fifteen and twenty-five; 23,740, or 29·47 per cent., were between the ages of twenty-five and thirty-five; 7,650, or 9·49 per cent., were between the ages of thirty-five and forty-five; and 1,430, or 1·77 per cent., were forty-five years of age and upwards.

The total number of cases of disease and injury entered on the sick list was 72,068, which is in the ratio of 894·81 per 1,000, being a decrease, compared with the previous year, of 16·26 per 1,000, and 71·32 per 1,000 when compared with the average ratio of the last ten years.

*Decreased Daily Sickness Average.*—The average number of men sick daily was 3062·41, which is in the ratio of 38·02 per 1,000, and shows a decrease, compared with the previous twelve months, amounting to 1·06 per 1,000, and of 3·35 per 1,000 in comparison with the average of the last ten years. The number of days' sickness, on board ship and in hospital in the total force, was 1,117,782, which gives an average loss of service from disease and injury of 13·87 days for each person, and shows a decrease, compared with the preceding year, to the extent of '43 day, and a decrease of 1·24 days in comparison with the average of the last ten years.

The total number of persons invalided was 2,576, which is in the ratio of 31·98 per 1,000, and shows an increase of 4·62 per 1,000 compared with the previous year, and of 5·44 per 1,000 contrasted with the average of the last ten years.

Out of the above total, 1,553 persons were finally invalided from the Service, being in the ratio of 18·9 per 1,000 for the whole force, or 59·12 per cent. of the number invalided, showing an increase of 1·02 per 1,000 compared with 1896.

The number of deaths was 422, which gives a ratio of 5·23 per 1,000, and exhibits a decrease of '05 per 1,000 in comparison with 1896, and of 1·62 on the average of the last ten years.

*The Sick-Rate Percentage on Stations.*—The average number of entries on the sick list for disease and injury per man on the home station was '77; on the Mediterranean station, '9; on the North American and West Indian station, '83; on the

South-East Coast of America station, '95; on the Pacific station, '88; on the Cape of Good Hope and West Coast of Africa station, 1'37; on the East Indies station, 1'19; on the China station, 1'11; on the Australian station, 1'06; and in the irregular force, 1'13. The average number of cases per man in the total force was '19, being '02 lower than in 1896.

The lowest sick-rate was on the South-East Coast of America station, and the highest on the China station. The ratio per 1,000 of men sick daily on the home station was 37'46; Mediterranean, 36'09; North American and West Indian, 36'31; South-East Coast of America, 26'75; Pacific, 26'92; Cape of Good Hope and West Coast of Africa, 45'21; East Indies, 43'79; China, 46'42; Australian, 39'6; and in the irregular force, 37'87. The average ratio of sickness for the total force was 38'02 per 1,000, which is a decrease of 1'06, when compared with the preceding year.

*The Invaliding Rates.*—The total number of persons invalided was 2,576, of whom 2,452 were invalided for disease, and 124 for injury. The ratio of invaliding for disease alone was 30'44 per 1,000, and for injury 1'53 per 1,000.

Compared with the preceding year, there has been an increase in the invaliding rate on the home, Mediterranean, North American and West Indian, Cape of Good Hope and West Coast of Africa, East Indies, China, and Australian stations, and in the irregular force, but a decrease on the other stations, viz., South-East Coast of America and Pacific.

The total number of deaths was 422; of this number 305 were due to disease, and 117 to injury. The death-rate from disease alone was 3'78 per 1,000, and from injury 1'45 per 1,000.

Compared with 1896, there was an increase in the death-rate on the Mediterranean, Cape of Good Hope and West Coast of Africa stations, and in the irregular force, but a diminution on the other stations.

The interest in the return, apart from the statistics given above, centres very largely in the fever returns from the Mediterranean, and the account which is given of the disease which occurred among the officers and men who took part in the Benin expedition, and among the crews of the "Jackdaw" and "Heron," which have been doing service in the "Niger," and in the "Mosquito" and "Herald."

*Fever in the Mediterranean: Great Increase.*—Fever in various forms claimed an unusual number of persons. There were no less than 552 cases of simple continued fever; fortunately, most of them were of a mild character. The "Hood" had 76 cases, the "Revenge" 57, and the "Royal Oak" 36. There was also a great increase in the number of cases of enteric fever; 122 cases are returned, as compared with 40 in the preceding year. Then, only eight were invalided and 17 died, whereas in 1897, 57 persons were invalided and 22 died. Staff-Surgeon J. N. Martin, D.S.O., of the "Forte," returned 55 cases, and has failed to put his finger on the specific cause of the epidemic. The outbreak lasted for many weeks, and Dr. Martin does not believe that the disease was contracted on shore.

Less attention in this report than in previous years is devoted to Mediterranean fever, but no fewer than 546 cases were under treatment, and resulted in 183 invalidings and six deaths. The "Vulcan" heads the list with 86 cases, and the other ships most severely attacked were the "Hood," 82; "Gibraltar," 54; "Camperdown," 45; "Ramillies," 41; and "Hibernia," 25. There is some agreement among the medical officers of the ships as to the cause of the outbreaks. Staff-Surgeon E. Ferguson attributes it to the washing of the decks with polluted water while in French Creek; and Fleet-Surgeon R. G. Brown and Staff-Surgeon H. X. Browne, of the "Hood" and "Camperdown," also report that the cases occurred while the ships were in dock at Malta, and that the number of cases rapidly fell after leaving Malta. The majority of the 546 cases appear to have originated at Malta, but others occurred in various parts of the station. Seventeen cases of dysentery resulted in six deaths, and there were 289 cases of remittent fever, from which there were no deaths, but 26 invalidings.

*The Benin Sick List.*—The health of the Cape of Good Hope and West Coast of Africa station during the year was bad. The average number of men daily ineffective from disease and injury was 9·27 above that of the previous year and 5·05 per 1,000 above the previous ten years' average. The Benin expedition was largely, if not entirely, responsible for this bad health. Five cases of enteric fever are tabulated, with one invaliding and two deaths, one of the latter being directly due to the Benin expedition. Under the head of remittent fever, 1,747 cases are returned, and, when combined with the 42 cases of ague, give a ratio of 559·06 per 1,000—an increase of 461·82 over the figures for the preceding year. The result of this sickness was 146 invalidings and 13 deaths, chiefly attributable to the Benin expedition. Under this head Surgeon H. A. Clinton, of the "St. George," which acted as flag-ship, gives an interesting account of the outbreak and progress of the disease. He says:—"As a result of the Benin expedition there were 443 cases of malarial ailments, attacking 238 persons, of whom 115 were on the sick list once, 66 twice, 37 three times, 19 four times, and one person six times. Of the 66 who had two attacks, in 36 they occurred within a month, and of these six were invalided; in 24 within two months, and of whom three were invalided; and in the rest, over that time, with no invalidings. From the figures at his disposal, he concludes that the further one gets from the creeks or rivers the fewer malarial organisms are to be found. He adds that the flying column, notwithstanding hardships, forced marches, and insufficient supplies of food and drink, suffered less than anyone. He has some interesting remarks to make with reference to the unsuitable clothing of the Marines, who suffered most severely, although they should have fared better than others. The disease was evidently not serious in the interior. No case had occurred in the flying column or among the rest of the men landed until they re-embarked. The outbreak in the flag-ship began directly the men reached the open sea.

*The Fever among the River Vessels.*—Remittent fever also claimed many victims from the "Herald" and "Mosquito," the stern-wheel gun-boats employed on the Shiré and Zambesi rivers; 92 cases are reported. The "Sparrow," principally while slave cruising, had 183 cases due to exposure, and the "Widgeon" 77. With reference to the "Heron" and "Jackdaw," the crews of which (as many as are in health) are on their way to England, there was an aggregate of 35 cases of remittent fever, 20 of which occurred in the former vessel. The returns affecting the crews of both these ships are for a period of three months, and as far as relates to the disease in question, from the 24th October, the date on which they reached the mouth of Forcados River. The medical officer of the "Jackdaw," Surgeon Oswald Rees, M.D., gives the following details:—"The officers and crews sailed from Liverpool on the 2nd of October for the Forcados mouth of the river Niger in the steamer "Loanda." They were all revaccinated just before leaving England, their arms being inspected on the 5th October, and those requiring it were again vaccinated. All took the second time in a modified or perfect form. On arriving at Sierra Leone the Kroomen were shipped.

"These were also all revaccinated with good results. On the 13th October the officers and crews began to take quinine, two and a half grains per day, which was increased to five grains as we approached the river mouth. On the 24th October H.M.S. 'Fox' was joined off Forcados, and the crew and baggage transhipped to await the steamer 'Fruitera,' in which the sections of the gun-boats had been sent out. The 'Fruitera' arrived on the following day, but two days passed before the men were transferred to her to be conveyed to Warri, where the boats were to be put together. We arrived at Warri just at the close of the wet season, probably the most unhealthy time of the whole year. Among the white population resident there, viz., twenty-one in number, there were no less than twenty-five severe cases of fever during the two months we were there; one case was of the blackwater type, but fortunately there were no deaths.



The remaining cases of remittent fever were disseminated amongst seven ships as follows:—71 cases in the "Magpie," 38 in the "Alecto," 36 in the "Fox," 23 in the "Blonde," 15 in the "Thrush," 10 in the "Monarch," and 8 in the "Penelope." Those returned from the two first-named vessels were the result chiefly of the Benin expedition.

The "Indefatigable" reports three cases of poisoning by the Manchineel tree, viz., one in the person of a sergeant of Marines, who bit the fruit, and thereby caused severe vesication of the face, mouth, and tongue; and two in the persons of officers who, as a result of standing under the tree during a shower of rain, had severe ophthalmia for some days. The "Urgent" returns a case of tobacco poisoning occurring in a warrant officer which produced amblyopia and obscure nervous derangement.

---

FRANCE.—The following are the principal appointments and promotions which have been made: Vice-Admiral—E. Pottier to command of the 4th Arrondissement Maritime (Rochefort). Rear-Admirals—P. C. L. Dieulouard to be Vice-Admiral; E. M. F. Richard to command of North Atlantic Squadron. Capitaines de Vaisseau—J. T. Péphau, C. J. Bayle to be Rear-Admirals; Z. L. Juhel to "Cécille"; L. J. Berryer to "Charner." Capitaines de Frégate—E. A. Pailhés, J. Baëhne to be Capitaines de Vaisseau; A. V. Adam to "Troude"; E. M. Amelot to "Nielly"; A. M. Aubin to "Jean Bart"; F. B. Moreau to "Ibis."—*Le Journal Officiel de la République Française.*

---

The appointment of Rear-Admiral Besson to the command of the naval forces at Marseilles is a new departure by the Minister of Marine, no officer of this rank having previously held the post. In addition to the troops manning the sea forts and batteries of the Marseilles section of coast defence, the admiral will have under his orders a flotilla of torpedo-boats, and among his other duties will be the perfecting of the necessary arrangements in case of mobilisation for the manning and arming of auxiliary cruisers, and the utilisation of yachts and pleasure vessels capable of being turned into gun-boats or torpedo-boat destroyers.

Rear-Admiral Bienaimé hoisted his flag on board the first-class armoured cruiser "Charner" on the 15th ult., at Brest, in command of the Staff Training Squadron, with Captain L. J. Berryer as his flag-captain. The squadron, consisting of the "Charner" and the second-class cruisers "Friant" and "Davout," has since been cruising round the northern littoral.

It is reported that the second-class cruiser "Duguay-Trouin," which for the last few months has been temporarily attached to the China Squadron, will not now return to her proper station in the Pacific, but is to return home *via* the Suez Canal, her place in the Pacific being taken by the new second-class cruiser "Protet."

The first-class protected cruiser "Cécille" was commissioned at Toulon on the 20th ult. as flag-ship of Rear-Admiral Richard, the newly-appointed Commander-in-Chief of the Atlantic Division. Although now ten years old, she has been one of the most successful of the French cruisers, and lately made 19 knots on her trial trip after repairs. She is a vessel of 5,766 tons, has a 4-inch armoured deck, with 4-inch transverse bulkheads at each end of the battery, reaching down to the armoured deck. Her armament consists of eight 6·4-inch, ten 5·5-inch, and ten 2-pounder guns, all Q.F., with fourteen machine guns. Rear-Admiral Richard is well known in Service circles in London, as he has twice held the important appointment of Naval Attaché to the French Embassy, and made himself very popular.

*Steam Trials.*—The torpedo cruiser "Fleurus" has at last successfully completed her official steam trials. During an eight hours' full-speed trial the engines developed 4,000-I.H.P., with a coal consumption of 165 kilogrammes per square metre of grate surface, the contract allowing a maximum of 230 kilogrammes;

the mean speed maintained during the trial is not stated. At a previous trial for 24 hours at 2,000 I.H.P., the coal consumption was 797 grammes per H.P. per hour, which, considering the bad ventilation of the stokeholds, is considered satisfactory. So at last, after five years' efforts, this small vessel has been reported ready for commissioning.

The second-class cruiser "Davout," which was commissioned on the 1st ult. to join the squadron of instruction under Rear-Admiral Bienaimé, has lately completed an extensive refit at Rochefort; her military masts with their heavy fighting tops have been removed and a couple of pole masts, for signalling purposes only, substituted, while her engines and boilers have been completely overhauled and repaired. At her recent trials the ship made 20·07 knots during her forced-draught three hours' run, and during her 24 hours' run under natural draught she made 18·6 knots for two hours and 16·7 for the remainder of the time.

*In the Dockyards.*—At Brest the work on the new first-class battle-ship "Iéna" is being pushed on with much vigour. Nearly all the side armour is in place and will be completely so in another month; the military masts and funnels are in position, and the contractors have commenced to get the Belleville boilers and machinery on board; while the rudder, which weighs nearly 10 tons, is ready to be shipped as soon as the vessel can be put into dock for the purpose. As the ship was only launched last September, the dockyard authorities are very pleased at the rapid progress which has been made.

The new first-class battle-ship "Suffren," also building at Brest, the first plate of which was only laid down last January, is likewise being well pushed on: the framing up to the lower deck is in position and almost plated, while the stern-post has been fixed. The ship is 9 feet 9 inches longer than the "Iéna." In view of the rapidity with which her construction is proceeding, general regret is felt that no credit for another battle-ship of the same dimensions has been taken in this year's Estimates, as one could easily be laid down on the same slip before the end of the year, as the "Suffren" will undoubtedly be launched in the autumn.

The 5·5-inch Q.F., and the 3·9-inch Q.F. guns of the new battle-ship "Gaulois" are now all in place, but her heavy turret guns are not likely to be ready before the end of the summer, if then. The *Yacht* consoles itself for this state of things by the reflection that if war broke out both the "Gaulois" and "Charlemagne" could at least be used as armoured cruisers.

A singular accident happened to the "Amiral-Baudin," at present in the dockyard hands at Brest. A sailor opened one of the inlet valves by mistake, and the water entered with such rapidity that for several hours tugs with powerful steam pumps were engaged in pumping her out. It reminds us of an accident which happened in 1875 to one of our own battle-ships, the "Iron Duke," when on her commissioning trial outside Plymouth. One of the Kingston valves was wrongly marked, and consequently was open when supposed to be shut; it was some time before the mistake was discovered, and so large an amount of water found its way into the ship, that some alarm was caused, and it was considered advisable to make signals of distress to the dockyard.

The second-class battle-ship "Amiral-Courbet" is to be placed in the dockyard hands at Toulon for new boilers, repairs, and alterations in her armament. Four 27·4-centimetre (10·8-inch) 40-calibre guns of the 1893 model, which have an initial velocity of 2,025 foot-seconds, are to be substituted for the 34-centimetre (13·3-inch) of the 1875 pattern, at present carried in the redoubt, while 24-centimetre (9·4-inch) guns of the 1893 model are also to be substituted on the fore-castle and quarter-deck in place of the old pattern 27·4-centimetre guns at present mounted there.

*Blowing up of the Naval Powder Magazine at Lagouban.*—A terrible catastrophe occurred on the early morning of the 5th ult. The Lagouban Naval Magazine No. 1, which stood on the shore between La Seyne and Toulon, blew up at 2.30

a.m., and as all the guard on duty were killed it is unlikely that the cause of the explosion will ever be ascertained. Enormous damage to surrounding property has been done, more than thirty houses in the adjacent village being completely destroyed. Not a vestige of the magazine remains, and the sea has rushed in and filled the cavity caused by the explosion. It is estimated that over fifty people were killed, and more than a hundred lie wounded. Fortunately, magazines Nos. 2 and 3, which are in tolerably close proximity to No. 1, were uninjured.

*Successful Torpedo-boat Attack.*—On the night of 3rd March, the *Défense-Mobile* of Corsica, consisting of the nine torpedo-boats 177, 185, 198, 169, 178, 124, 126, "Coureur," and "Sarrasin," left Ajaccio for Cape Corso, where they took post, concealing themselves in the creeks and bays of the coast and awaited the passing of the Mediterranean Fleet, on which it had been arranged that an attack should be made that night.

Towards 9.30 p.m. the ships of the fleet appeared, searching the coast as they advanced with their search-lights. They were, however, unable to discover any of the torpedo-boats.

As soon as the fleet had passed, these latter sallied out from their concealment, and giving chase made their attack, with the result that the "Masséna" was torpedoed by the "Coureur," and the "Chanzy" and "Du Chayla" by Nos. 198 and 185 respectively.—*Le Yacht, Le Moniteur de la Flotte, and Le Temps.*

*The Naval Budget for 1899.*—The report of M. de la Porte upon the Naval Estimates for 1899 has been submitted to the Chamber of Deputies, and passed by that body with only one or two unimportant modifications. The amount demanded by the Minister of Marine was 306,943,734 francs (£12,277,750), an increase of 17,121,454 francs, as compared with last year; the amount approved by the committee is 302,065,994 francs (£12,082,640), a reduction of 4,877,740 francs, which is divided among several heads of expenditure, and which saving is increased to 6,577,740 francs (£263,110) by the alienation of the Naval Hospital at Toulon and the sale of old unserviceable vessels. M. de la Porte draws attention to the inevitable increase in the Budgets of late years.

In 1868 the Estimates amounted to 172 million francs.

|         |   |   |     |   |   |
|---------|---|---|-----|---|---|
| In 1869 | " | " | 154 | " | " |
| In 1871 | " | " | 142 | " | " |
| In 1872 | " | " | 118 | " | " |

But in 1890 the Estimates had amounted to 201,552,516 francs (£8,062,100), and in the present year to 302,065,994 francs, as stated above or an increase of over 100 millions in the nine years. In 1890 the amount devoted to new construction was 35,859,121 francs (£1,434,365), while in the present year it has risen to 92,689,000 francs (£3,707,560), an increase of about 57 million francs (£2,280,000); while in the same period the expenses for the *personnel* have increased by over 10 million francs (£400,000).

The strength of the *personnel* in 1897 was 39,586 men, exclusive of Marine troops, in 1898, 41,548, and it is now proposed to raise the number to 44,620 men.

M. de la Porte is of opinion that the fleet is badly in want of cruisers. Up to the present time France, contrary to the practice of England and the Triple Alliance, has reserved only about one-third of the total tonnage of the fleet for cruisers, viz.:—136,690 tons as against 242,904 tons for battle-ships; the proportion in England being 530,720 tons battle-ships, and 528,415 tons cruisers; in the Triple Alliance 247,549 tons battle-ships and 200,230 for cruisers. He points out that if France is in an inferior position to England as regards battle-ships, she is in still worse case as regards cruisers. The inferiority in battle-ships is 287,815 tons, but in the case of cruisers it is 391,725 tons, so that at least

100,000 tons more of cruisers is required than for battle-ships in order to redress the balance. The following table shows the relative tonnage of the two countries :—

|                             | Tons.   |
|-----------------------------|---------|
| England—Battle-ships ... .. | 530,720 |
| France .. ..                | 242,905 |
| Difference ... ..           | 287,815 |
| England—Cruisers ... ..     | 528,415 |
| France .. ..                | 136,690 |
| Difference ... ..           | 391,725 |

The following table shows the proportion of tonnage between battle-ships and cruisers, in the ships at present under construction :—

|                | Battle-ships. | Cruisers. |
|----------------|---------------|-----------|
|                | Tons.         | Tons.     |
| England ... .. | 167,700       | 152,000   |
| Russia ... ..  | 74,000        | 62,040    |
| Germany ... .. | 44,500        | 42,500    |
| Italy ... ..   | 60,000        | 17,338    |
| Austria ... .. | Nil.          | 10,800    |

Under these circumstances, M. de la Porte recommends that the proposal of M. Lockroy to suspend during the present year the laying down of a battle-ship, in order that all available resources may be directed to the building of cruisers, torpedo-boats, and submarine vessels, should be approved. Submarine boats of the "Gustave Zédé" type, he continues, have the defect of a limited range, but this will not be the case with the "Narval" and her sisters, which become submarine boats propelled by electricity only when they get within range of the enemy. He approves of the system adopted of grouping torpedo-boats, two being placed under the orders of one officer, one fully manned, the other in reserve, but ready for service. He next calls attention to the necessity of lightening some of the battle-ships, which are so deeply immersed as to lose largely the value of the protection which has been given to them at great cost; and he insists also upon the necessity of removing fittings of wood from the ships, and he announces that his committee has struck out from the Estimates all charges for the battle-ships "Colbert," "Trident," and "Richelieu," the cuirassés de croisière "Turenne" and "Victorieuse," and the cruisers "Aréthuse," "Inconstant," "Dubourdieu," "Naiade," "Nielly," "Primauguet," and "Rigault de Genouilly," which are of wood. He regrets that much money is spent on useless work, which ought to be employed in real preparation for war, and draws attention again to the great delay in completing new ships, especially in the case of the "Henri IV." at Cherbourg, and the "Jeanne d'Arc" at Toulon, which, though both laid down in October, 1896, have not yet been launched, while the "Dupleix," which should have been laid down in December, 1897, has not yet been commenced; he also draws attention to the delay in the completion of the "Gaulois" and "Charlemagne."

With regard to coaling stations, M. de la Porte points out that the squadrons in war-time could not proceed to places relatively near, like Constantinople or Port Said, and return without recoaling at an intermediate station. In time of peace they could only go as far as Dakar, and then would be obliged to recoal in order to return. These facts alone, M. de la Porte says, serve to demonstrate the necessity of establishing fortified coaling, victualling, and refitting stations, but it will be puerile to have any illusions as to the cost, which the completion of such a programme will entail; and he considers that the first estimate of the Parliamentary Commission, which in 1897

asked for 40 millions for stations in the Mediterranean, and at Senegal, Martinique, and Madagascar, should be more than doubled in order to reach the approximate cost of the works included in this part of the programme. With regard to the *personnel* of the fleet, he points out that on the 1st December, 1898, there were 43,991 men borne, of which 23,425 came from the *Inscription Maritime*, and 15,566 were volunteers; among these were 92 per cent. of the mechanics and artificers, and 27 per cent. of the torpedo-men.—*Rapport par M. de la Porte (Budget Général de l'Exercice 1899. Ministère de la Marine.)*

*Discussion on the Budget for the Navy.*—During the month of March the Chamber devoted several sittings to the discussion of the Naval Budget.

In his speech on 17th March, M. Lockroy took credit for the following alterations and reforms introduced since he became Minister of Marine.

The fleet in the Mediterranean is raised to fifteen battle-ships, while England has but ten in the same waters.

The Northern Squadron raised to six battle-ships.

The squadron in the Far East reconstituted and now composed entirely of modern vessels of 18 to 20 knots speed, and a like alteration to be made in the West Indian Squadron.

*Points d'appui* for the fleet created at Saigon, Fort de France, Cape Saint-Jean, Dakar, Noumea, Fort Dauphin, Diego-Saurez, and Tonquin; these are not all however to be fortified. Bizerta can be defended by simply sinking a vessel in the canal; finally, Corsica has been made secure against a *coup de main*.

M. Lockroy went on to say:—"But this is not all that we have done: we found that our coasts lacked defence, there was a want of men at the arsenals of Cherbourg, Brest, and Toulon; in case of mobilisation we found that hardly one-third of the batteries could have been manned; we have put all in a state of defence; to-day the batteries of all our ports are armed and there are men behind every gun.

"Reforms have also been introduced into the Accountant Branch, which in future will be conducted on sound business principles, so that the Chamber will be able to see exactly how and what is expended.

"Finally, a high functionary has been placed at the head of the Constructive Department.

"If France wishes for peace she must be prepared for war, and the next struggle will be a maritime war directed against commerce, and it is with this end in view that we have endeavoured to give her a superior equipment to prosecute a war on these lines."

A good deal of heat was introduced into the discussion by the critical speech delivered by Admiral Rieunier, député for Rochefort, and a former Minister of Marine in 1893. He made a violent personal attack on M. Lockroy and his staff, for which he has been blamed by the Press, though other parts of his speech appear to have met with some support.

He is an advocate for a large expenditure on new constructions and more battle-ships, and does not approve of the craze for submarine boats or so many *points d'appui*.

During the discussion, it was stated by M. Claudinon, an iron-master and député for Loire, that the best nickel steel armour in the world was manufactured at Creusot, that French naval *matériel* was superior to that of any other nation, and that the battle-ship "Bouvet," of 11,500 tons, was more than a match for the English "Magnificent," of 15,000 tons. The *Temps*, in commenting on this, says:—"We hope this may be so, we don't ask for anything better."

M. Dajeante, a radical député of the extreme left, proposed (as he has done on previous occasions) to reduce the Estimates by 79,650 francs, and abolish the naval chaplains (*aumôniers*). M. Lockroy, in opposing, said if chaplains no longer exist in the Army it is because our soldiers do not quit the national territory and



can attend any place of worship according to their consciences, but the case of the Navy is different. On a division, the amendment was rejected by 321 to 157 votes.

The subscription opened by the Paris newspaper *Matin*, to provide the cost of two submarine torpedo-boats, to be called the "Français" and "Algérien," has realised 383,827 francs (£15,583).

The Minister of Marine, in accepting the money, has stated he will give orders for these two small vessels to be commenced as soon as possible.—*Le Temps*.

UNITED STATES.—*Bureau of Steam Engineering*.—Chief Engineer George W. Melville, in his annual report, sums up the lessons of the war as follows:—

"The war which has just ended is the first in which modern steam-vessels have had a thorough trial, and it seems pertinent to note the more important lessons which have been taught by our experience. With respect to the machinery they are as follows:—

"1. The vital necessity of giving the machinery of vessels in reserve frequent tests under working conditions, so that any defects may be discovered and remedied before war makes the vessels' services absolutely necessary. In several cases defects were found after the ships had begun cruising, and the repairs laid them up in the midst of the war.

"2. The great importance of having all our naval stations in positions of strategic value properly fitted out for repairs and with adequate supplies of non-perishable stores. It had been evident for a long time that Key West was such a station, but money to put the plant in a proper repair was refused year after year, and only granted after the war had begun. The movement of large bodies of troops and their equipment almost blocked the railroads, so that after the beginning of the war it was almost impossible to secure the forwarding of tools and supplies.

"3. That fresh water for the boilers is most as important as coal, and that a distilling ship is an important adjunct of a fleet operating away from a base where fresh water can be readily obtained.

"4. That every fleet needs a repair ship to enable the efficiency to be maintained without leaving the station, and consequently that several ships should be equipped so as to be ready to proceed with the fleet.

"5. The great tactical advantages of water-tube boilers.

"6. That if more than two main engines are to be fitted, there should be three engines driving three screws, and not two main engines, on each shaft. The 'New York' and 'Brooklyn' had their forward engines disconnected at the time of the Santiago fight and could not stop to couple them. An accident to any part of either of the two engines on a shaft disables half the power; in the three-screw ship this fraction would be only a third.

"7. That there should be frequent trials under forced draught to keep the blowers in good condition and to make the men thoroughly familiar with working under maximum conditions. It appears that some of the ships had never been under forced draught since their contract trials until the day of the fight at Santiago.

"8. That the location of the forced-draught blowers is a matter of serious importance. In some of our ships, owing to the demands for all other space for other purposes, the blowers had to be located in corners or pockets in the fire-rooms, where it was impossible for human beings to give them proper attention, owing to the intense heat due to lack of ventilation. In the 'Cincinnati' temperatures as high as 205° Fahr. were noted, and the commanding officer, when investigating the case personally, had his face scorched. The blowers must be placed where they can be properly cared for, or else they are useless, and might as well be left on shore.

"9. That the *personnel* of the Service should be adequate to the *matériel*. It has been notorious for some time that this is not the case, and we are providing for a decided increase in the number of vessels with no increase whatever in the

*personnel.* By sending nearly every officer on the active list to sea we were able to give the regular ships a fair complement of trained ones, but had the war been of long duration we should have been greatly embarrassed to supply the places of those disabled or invalided. Volunteers, however well trained in other ways, cannot entirely replace the regular officer.

"10. That we must make provision for training the enlisted men of the Engineer Department. Many of the colliers and auxiliary vessels had to start out with absolutely green crews, many of whom, so far from having the 'sea habit,' had never been on a vessel of any kind. This must be remedied if our enlarged fleet is to be efficient.

"11. That our fighting-ships must have the highest practicable speed. There is an almost general agreement on this point among naval men, but if any had thought that this did not apply to battle-ships the fight at Santiago must have shown that the highest practicable speed is just as important in these vessels. It is very gratifying, therefore, that our three new battle-ships are to have speeds of at least 18 knots, which is now recognised as the standard."

The Bureau of Steam Engineering has expended during the year 1,922,054.23 dollars, and has in the Treasury 4,743,559.27 dollars.

By far the greatest amount of labour to the Bureau was occasioned by the necessity of fitting out the auxiliary Navy, consisting of some 110 vessels of all kinds and containing all sorts of machinery, which often needed repair or alteration. There were so many breakdowns in this class that Chief Engineer J. W. Thomson and afterwards Chief Engineer Charles W. Manning were detailed to aid Chief Engineer Little, of the Key West Station.

As to the performance of naval machinery, barring the torpedo-boats, there was a remarkable absence of casualty in the machinery departments of the vessels of the fighting squadrons during the period of the war. Even in action, when forced-draught conditions were in operation and the excitable natures of the men most wrought upon by the surroundings, the reports show that the machinery not only worked well generally but that in no case was it greatly distressed. This is as fine a commentary on the *personnel* as on the machinery. It is greatly to be regretted that the torpedo-boats cannot show the same excellent records for their machinery, but it is a sad fact that nearly every one has had some accidents, and the machinery of some at the close of the war was in a condition which can only be described as horrible, where boilers were burnt, cylinder covers broken, pistons and valves stuck, and everything in bad shape. This condition of affairs seems attributable to two causes, the absence of trained engineering supervision and the use of the boats for duty to which they were not adapted.

Although the steam turbine itself was not a novelty in engineering, owing to the skill with which its economy has been developed in England by the Hon. C. A. Parsons, its application last year to propulsion on the "Turbina" was a decidedly novel step, and the remarkable performance of that little vessel of 42 tons displacement in attaining a speed of over 31 knots attracted the attention of engineers and shipbuilders all over the world. While an analysis of the published *data* of the performance would seem to indicate that the boiler was the most remarkable part of the machinery rather than the turbine, the fact remains that the combination enabled a phenomenal record to be made. During the year the Bureau has been carefully investigating the adaptation of the steam turbine to naval uses, has kept informed of the progress of experiment on two forms of turbine being developed in this country, and has been represented at an economy test of one of them. Thus far the results obtained do not warrant an expectation of the substitution of the turbine for the steam engine in the near future, but the experimental work will be carefully watched so that, should further experience warrant the use of the turbine, the Service may be among the first to profit thereby.

The report urges the importance of building our machinery in classes with identical machinery for the vessels of each class, and regrets that the result of

inviting alternate bids is to introduce several varieties of machinery even in torpedo-boats and destroyers where uniformity is especially necessary. "The theory on which the alternative bids are invited is that all the skill in the designing of hulls and machinery is not confined to the bureaus of the Department, which, of course, is true; but it is just as true that the designers of the Department, who confine themselves to this class of work, ought to be and are better able to decide what will best answer the needs of the Service. . . . If bidders submit plans containing features superior to any in those of the Department it would be foolish not to adopt them, but in my judgment, the adoption should consist of a modification of the Department plans to that extent, so that all builders would have to follow them."—*Army and Navy Journal*.

*Enlisted Strength Afloat.*—The ability of the United States to supply capable sailors was never exhibited more strongly than a few months ago, when the enlisted force was quickly and without great labour suddenly increased to double its peace strength within a comparatively brief period. All these men were picked, equipped for the various duties for which they were enlisted on shipboard, and presented as fine a body of seamen as the naval service would desire even in peace-time, when opportunity for close selection is necessarily greater and more care can be given to the examinations for admission. Had there been pressing emergency the men actually enlisted in two months could easily have been obtained in three weeks, but the Navy was so well equipped before the war that the officials were justified in using the same scrutiny in enlisting men as in times of peace. The result was that the Navy had on all its fighting craft the finest and most competent body of men probably that were ever afloat in its history. The records of the enlistments show that last April the strength of the Service, including all classes, sailors, machinists, coalheavers, and every other rating on shipboard, numbered about 12,500 men, and on 15th August, when the strength reached its highest point, the floating force had been doubled, numbering 24,122 men. This war strength is just the size of the Standing Army when fully enlisted one year ago. The additional men came from all sections of the country, but at least 5,000 were the Naval Militia organisations, which did such efficient work on the auxiliary vessels. The remainder came from the Great Lake region, the Far South-west, the South and along both coasts, and were enrolled at receiving ships, by special boards and otherwise. A tabulated statement which has been prepared shows that on 1st April, although war then seemed imminent, there were only 12,000 men in service, and on 1st June 20,000, high-water mark being reached 15th August. From then it began to decrease gradually as discharges were made and further enlistments stopped. At least 30,000 men could have been secured by 1st October, if enlistments had been kept up at the same rate. On 1st October the strength of the Navy was 20,275, and it is proposed to keep it at that point so long as the Peace Commission sits. A strong effort will be made to have the permanent strength of the enlisted force not less than that hereafter. Captain Crowninshield and Secretary Long have concluded that the Navy as at present constituted and considering the ships building, cannot be maintained with a force less than 20,000 men, and the completion of the programme of construction now under way, will require the addition of 5,000 men. The two receiving stations are expected to supply a large proportion of the enlistments, the purpose of the Department in establishing a second station on the Pacific coast being to assist that at Newport in instructing apprentices, this class being better adapted to handle modern guns and equipment of the new ships than the best of sailors accustomed to vessels of the old type. At no time during the war were there more than 1,500 sailors in reserve on receiving ships, and if any serious calamity had befallen us, making new crews necessary, the Navy would have been barely able to meet the call instantly. Of the 20,000 men now in the Navy all are afloat with the exception of 750 on receiving ships.—*Army and Navy Journal*.

## MILITARY NOTES.

### PRINCIPAL APPOINTMENTS AND PROMOTIONS DURING MARCH, 1899.

Major-General Sir Herbert C. Chermiside, G.C.M.G., C.B., Royal Engineers, to be Brigadier-General on the Staff to command the British Troops in the Island of Crete. Colonel Sir W. H. Meiklejohn, K.C.B., C.M.G., to command a 2nd Class District in India, with temporary rank of Brigadier-General whilst so employed. Colonel A. J. F. Reid, C.B., Indian Staff Corps, to command a 2nd Class District in India, with temporary rank of Brigadier-General whilst so employed. Surgeon-Major and Hon. Deputy Inspector-General Joseph Jee, V.C., C.B., to be Hon. Surgeon to the Queen. Brevet Colonel T. C. O. Powlett to be Colonel to command the 48th Regimental District. Colonel H. M. Ramsay, Bengal Infantry, to be Major-General. Colonel L. H. E. Tucker, C.I.E., Bengal Infantry, to be Major-General. Colonel D. J. S. McLeod, Madras Cavalry, to be Major-General. Supernumerary Major-General the Hon. N. G. Lyttelton, C.B., Assistant Military Secretary at Head Quarters, to be Major-General. Brevet Colonel D. A. Johnston, Royal Engineers, is granted the substantive rank of Colonel in the Army on appointment as Director-General of the Ordnance Survey. Major-General Sir F. Carrington, K.C.B., K.C.M.G., to be Major-General on the Staff to command the Troops in the Belfast District. Lieut.-General H. Le G. Geary, C.B., Royal Artillery, to be President Ordnance Committee. Major-General J. F. Owen, Commanding Royal Artillery, Malta, to be Lieutenant-General. Colonel F. G. Slade, C.B., from A.A.G., Woolwich District, to be Major-General.

HOME.—The annual report of the Inspector-General for Recruiting has been issued. Many important changes affecting the Army have taken place, some of them probably far-reaching in their consequences. These changes are classified as follows :—

1. Increase of establishment by formation of additional batteries of field artillery, companies of garrison artillery, battalions of foot guards, and infantry of the Line, and various colonial corps.
2. The abolition of deferred pay, and substitution of a messing allowance and gratuity on discharge or transfer to the reserve.
3. The introduction, for the infantry of the Line, of a shorter term of colour service (viz., three years with the colours, and nine years in the reserve).
4. Formation of "Section A" of the 1st Class Army Reserve.
5. The formation of the "Special Service Section" of the Militia.
6. The re-transfer of men to the colours from the reserve under certain conditions.
7. Inducements to short-service men to extend their service with the colours for two years.
8. New rules as to reckoning of former service by re-enlisted men.
9. Recruiting opened in Canada for the Leinster Regiment (Royal Canadians).
10. Additional facilities offered to cavalry recruits to join particular regiments in which they wish to serve.
11. Variations in the standard of cavalry recruits and of Militia recruits.
12. New Railway Reserve (Royal Engineers).

The first part of the report deals wholly with the above changes, and explains them in detail, pointing out the effect they have had and are likely to have on recruiting. The augmentation in the establishment authorised in the Estimates for 1898-9 was 215,686 rank and file, as compared with 195,501 of the preceding year, showing a total increase of 20,686 rank and file. Although the whole of this increased establishment was included in the Estimates for 1898-9, it was decided that the augmentations were to be carried out gradually and spread over a series of years; consequently the actual establishment of the Army at the commencement of the present year consisted of only 204,925 rank and file. During the past year an important change has been made in the pay of soldiers. All soldiers, with the exception of those enlisting in the infantry of the Line for three years with the colours and nine with the reserve, now receive an increase of 3d. to the daily emoluments, on becoming efficient, provided they are nineteen years of age. On transfer to the reserve or discharge they also receive a gratuity of £1 for each year of their colour service up to a limit of £12. If, however, they serve until entitled to a pension, the gratuity is only £2. All men enlisted before the 1st April, 1898, were offered an opportunity of availing themselves of these conditions, and, practically, all have accepted them; deferred pay has been abolished from the date the new conditions as to pay came into force.

With reference to the shorter term of colour service, the report says that the necessity of providing men of the required age to furnish the drafts for foreign service has hitherto prevented the system from having a fair trial, and it has, up to the present, been confined to 50 men for each home battalion of infantry. Regiments having both battalions abroad have accordingly not been opened to this class of recruit.

As a means of bringing regiments detailed for small wars up to establishment without calling out the Army Reserve by proclamation declaring emergency, or depleting other battalions by calling for volunteers, a new section of the reserve (called Section A) has recently been formed. It is to consist of 5,000 men, and is limited to reservists of the Royal Artillery, Foot Guards, infantry of the Line, Army Service Corps, and Royal Army Medical Corps. They must be men of good character, who are within the first year of their reserve service, preference being given to men who are good shots. The liability is for twelve months' service from date of re-transfer to the colours. An addition of 6d. per diem to their ordinary reserve pay of 6d. a day, is given to men for the additional obligation undertaken.

No steps will be taken for the formation of the new "Special Service Section" of the Militia until the coming spring, when the men will be engaged for this section at the termination of the annual trainings. The Inspector-General states "that the change of system in supplying drafts for cavalry, which throws upon the home regiment the duty of preparing drafts for, and maintaining up to establishment, the cavalry regiment abroad, has not affected the popularity of the cavalry from a recruiting point of view. In 1897, 2,423 cavalry recruits were enlisted, while in 1898 the number amounted to 3,778."

With regard to the above numbers, it should be borne in mind that in 1897 the standard height of cavalry recruits over twenty years of age was 5 feet 8 inches for Dragoons and Lancers, and 5 feet 7 inches for Hussars. In 1898 this standard was reduced 1 inch in each case, which may possibly account for a greater number of recruits for last year.

A *minimum* standard of chest measurement for growing lads from seventeen to eighteen joining the Militia has now been fixed by regulation, whereas this matter had previously been left to the discretion of the examining medical officer. In a large number of battalions of infantry Militia which were considerably under the authorised establishment, recruits of eighteen years and upwards were allowed to be taken at 5 feet 3½ inches instead of 5 feet 4 inches, during the past year.



The scheme for the enlistment of railway *employés* into the 1st Class Army Reserve bids fair to be a success, as far as can be ascertained for the short time it has been under trial. The scheme provides that the men are to be enlisted in the Royal Engineers for a term of six years, viz., three with the colours and three with the Reserve, but they are to be transferred to the reserve immediately on enlistment. During the time the men are in the reserve they receive 6d. a day, which may be regarded as a kind of retaining fee.

The total strength of the Regular Army at the end of 1898 was 222,373, an increase of 9,980 on its strength of the preceding year. This is not so satisfactory as it seems, for it appears that 4,479 Army Reserve men were induced by the offer of a special bounty to rejoin the colours, and thus that number of men are lost to the reserve. There remains then an actual surplus of about 5,500 men over last year. But in 1898, 3,207 more recruits under the standard were enlisted than in 1897, and a special bounty was offered to men about to leave the colours for the reserve, to extend their service with the colours, and 800 men availed themselves of the offer.

The effective strength of the colonial corps on 1st January, 1898, was 5,083, and on 1st January, 1899, was 6,576, the new 3rd Battalion of the West India Regiment being now practically complete. A regiment called "The West African Regiment" has been formed on the West Coast of Africa with a total strength of 1,067, and the "Chinese Regiment of Infantry" is now in course of formation at Wei-hai-Wei, but this corps does not appear in the official returns.

The total strength of the 1st Class Army Reserve on 1st January, 1899, was 78,798, as against 82,005 on 1st January, 1898.

Notwithstanding the large increase in the numbers enlisted year by year there has been a gradual falling off, not only in the total strength of the Militia, but also in the numbers present at the annual trainings. The shrinkage in the effective strength between 1st January, 1898, and 1st January, 1899, was 4,745 men. The Inspector-General states that in some agricultural districts where the battalions show little or no prospects of recovery, the establishments are being gradually reduced.

The Inspector-General says :—"As stated in my last report, arrangements were concluded in 1897 under which one-half of the appointments as postmen would ultimately fall to ex-soldiers. The claims of telegraph messengers who were sixteen years of age and upwards on 1st September, 1897, prevented the new arrangement from at once coming into full operation, but the numbers of that class with priority over soldiers are rapidly diminishing, and it is hoped that the Army candidates will soon obtain the full 50 per cent. of the situations intended to be reserved for them. A further scheme has been since put forward under which all boys entering the postal service as telegraph messengers will be required to enter the Army on reaching eighteen years of age, the Postmaster-General reserving to himself the right of selecting as many as he may require to keep up the establishment of postmen, viz., 50 per cent. of the total number, and of the remainder, those who enlist to have places as postmen reserved for them on completing their colour service, provided their characters in the Army have been satisfactory. It has been decided to assemble a committee to consider this proposal. I cannot, however, too strongly express the hope that under no circumstances may a change in the present arrangement, under which half the vacancies as postmen are given to ex-soldiers, be consented to."

The number of men who left the colours with satisfactory characters during the year was 18,971, and during that period 17,610 were either provided with civil employment or found it for themselves.

The Inspector-General observes, in conclusion :—"The result of the year's work is, to a certain extent, gratifying, inasmuch as the foregoing statistics prove that the number of situations found is nearly equal to the number of deserving men who left the colours. This goes far to show that men who conduct themselves

well need anticipate no difficulty in finding work on their return to civil life. The employment provided in many cases is, however, not of a particularly remunerative nature, and is not of a class that can be advertised as an inducement to respectable young men to join the Army. Moreover, these figures belong to a time when trade is good, and labouring work is plentiful, and it is more than probable that in less prosperous times the proportion of ex-soldiers securing employment would be much lower. These are amongst the reasons that urge me to impress upon the Government the necessity of reserving its own employment for those who have already served it as soldiers, and thereby to raise the profession in the estimation of private employers."

Under the new system for the administration of the recruiting service which comes into force on April 1st, all recruiters, including sergeant-instructors of Volunteers, will have a definite recruiting area assigned to them, while detached recruiters will be provided with a rough sketch-map showing their respective areas and the places to be periodically visited. To ensure that their visits actually take place, full use is to be made of the concession recently granted by the Post Office authorities which gives facilities for the stamping by local post offices of the recruiters' diaries, thereby showing the date on which the recruiter was present at any particular town or village. To maintain this continuity of recruiting in large centres of population, and to provide a permanent organisation in the event of the withdrawal of the recruiters of the permanent staff for mobilisation or Militia training, a certain number of paid recruiters in addition to those detached from depôts will be employed.

Provision has been made for additional men of this class being enrolled, whose pay, in order to induce suitable discharged non-commissioned officers to become candidates, it is in contemplation to raise from 2s. to 2s. 6d. per diem, while the present uniform worn by pensioner recruiters is to be made more attractive. A slightly increased sum has been appropriated for advertising purposes, to be used on the occasion of the marches of troops through districts, or other exceptional circumstances. Intimately connected with recruiting is the important duty of finding civil employment for soldiers on discharge or transfer to the Reserve. Every available officer at depôts, members of the permanent staff of Militia, Yeomanry, and Volunteers are now to be engaged in recruiting; and on the results obtained by officers of the Militia and Volunteers while serving on the Army engagements will depend their retention in the Service for a period of two years beyond the age limit.

---

**BULGARIA.**—On the 16th December, 1897, the Sobranje voted a law modifying the organisation of the Bulgarian Army; this law was approved by the Prince on the 27th December and promulgated on the 27th February, 1898; it regulates the progressive development of the Army, which has now very nearly reached its proposed establishment.

*Infantry.*—There actually exists:—1. Twenty-four regiments of the Line, each composed of 2 battalions of 4 companies each, and 1 company of non-combatants. These regiments are grouped in 12 brigades and 6 divisions. This composition is final.

2. The law of 1897 ordered the formation of a certain number of infantry battalions to garrison fortresses, without deciding on the exact number of these battalions, which must vary according to the number of fortified places. There already exist six companies of fortress infantry at Silistria; the Ukase No. 7 of 1898 adds to them a special company of sappers. The Ukase No. 2 of 1898 decided, besides, to form a staff and a special garrison at Widin, the effective of which has not yet been fixed.

3. Ukase No. 36 of 1898 gives the following composition to the Corps for Frontier Defence, viz.:—1 battalion of 3 companies in the district of the 1st and 2nd Divisions; 1 battalion of 2 companies in the 6th District, and 1

detached company in each of the 3rd, 4th, and 5th Districts. According to a recent Press announcement, this organisation for the Frontier Defence Force is not definitely fixed, and the Bulgarian Government have decided to form progressively, in the district of each division, an independent battalion for frontier defence, including 3 or 4 companies on foot, and 1 mounted company.

*Cavalry.*—The Bulgarian cavalry actually consists of 2 regiments (Nos. 1 and 2) of 5 squadrons and 1 squadron of non-combatants each; 3 regiments (Nos. 3, 4, and 5) of 4 squadrons, and 1 squadron of non-combatants each; 1 squadron of the Guard. Thus a total of 23 combatant and 5 non-combatant squadrons is realised. There only remains to form a 6th Regiment, for which purposes the 2 extra squadrons from the 1st and 2nd Regiments may be utilised.

*Artillery.*—1. By the Ukase No. 36 of 1898 the 6 regiments of field artillery were each broken up into 3 groups of 3 batteries each; the field artillery thus attained its complete development.

2. The same Ukase formed 3 groups of 3 mountain batteries. These groups are still attached to the 2nd, 3rd, and 4th Field Artillery Regiments. They will be united as 1 regiment of mountain artillery of 9 batteries.

3. The Garrison Artillery includes 3 battalions of 5 companies. 5 Howitzer batteries have still to be formed, 1 for the 1st Battalion, and 2 to each of the 2 others.

*Engineers.*—There exist 3 battalions of pioneers of 4 companies, with 1 section of non-combatants, and 1 technical battalion of 3 companies (1 railway, 1 telegraph, and 1 pontoon company).

*The Auxiliary Troops.*—Their establishment is complete and consists of:—

- 6 Military train companies, attached to the 6 field artillery regiments.
- 6 Divisional hospitals.
- 2 Artillery depôt workshops.
- 2 Remount depôts.

—*Revue Militaire de l'Étranger.*

---

FRANCE.—According to a comparison of the proportionate strength of the German and French Army in peace-time, which was laid before the Chamber of Deputies by the French Government, the French Army in 1899 consists of 2,524 superior and 19,705 subaltern officers, 40,622 non-commissioned officers, 516,378 corporals and soldiers; altogether, 22,289 officers, and 557,000 soldiers. At the commencement of the year 1899 the German Army numbered, according to the law of 1893, 23,008 officers, 78,217 non-commissioned officers, and 479,229 corporals and soldiers; altogether, 557,446 men; so that the German Army up to the present had 719 officers and 446 soldiers more than the French. In Algeria the French troops consisted of 1,478 officers and 54,000 men. Besides which the German Army, thanks to most favourable recruiting conditions, has a yearly decrease of only 20,000 men, whilst the French Army has one of 40,000. The French Army in Europe was, therefore, up to the present already 74,000 men weaker than the German. As the peace-footing strength of the German Army, not counting officers and non-commissioned officers, will be fixed at 495,000 by the Reichstag until the year 1903, the difference in favour of Germany will in future be about 90,000 men.—*Militär-Zeitung.*

---

The Artillery Technical Committee held, on the 28th February last, a fresh meeting, principally given up to the examination of the different questions on which the Minister of War wished to have their preliminary advice. The Committee considered it better to keep the same number of guns to a battery and the same batteries to an army corps. Concerning the distribution of batteries to army corps, the prevailing opinion appeared to be in favour of the grouping in three regiments, of which two would be divisional and one corps artillery. Each

of the two regiments of divisional artillery would be composed of six field batteries of six guns each, which would form two groups of three batteries, or three groups of two batteries. As to the regiment of corps artillery, it would be composed of six field batteries and two horse batteries, each with six guns. It may be observed that the artillery will thus go back to the system of reserve and corps batteries, the same as was in force in our Army in 1870. We may add that the third battery for a division of cavalry will be brought in again, so that each independent brigade will be accompanied by its battery. The manufacture of the new *matériel* is now so advanced that it becomes necessary, on account of its early completion, to decide without delay on all details of its future organisation.—*La France Militaire*.

The *Temps* gives the following account of some shooting experiments at a bullet-proof breastplate, which took place lately at Asnières.

The apparatus consists of a plate of a special metal, almost as dense as steel, and hammered, enclosed between two pads arranged in such a way as to prevent ricochets. It measures about 12 inches in height, 9 inches in width, its total thickness is  $1\frac{1}{2}$  inches, the mean thickness of the plate is  $\frac{1}{2}$  inch, the total weight is about  $7\frac{1}{2}$  lbs.

The breastplate was fired at from a distance of about 75 yards with the new Mauser rifle, calibre '236. Two bullets having carried to the right of the apparatus, completely penetrated a rough stone wall, over 1 yard thick, which was behind the breastplate. The bullets which struck the apparatus shattered against the plate, and caused numerous rents of exit on the front surface; the back surface remained intact. The apparatus having been taken down, it was observed that the impressions of the bullets on the plate were barely discernible; some traces of flattened lead and fragments of the metal cases were found in the padding.

The plate alone was then fired at from a distance of 43 yards with the same rifle; the impression was about the same as in the preceding case. Finally, at the same distance, viz., 43 yards, another plain plate was fired at, of the same metal, but less thick and not so much worked up; the result was good, but the impression of the bullet was deeper. With this second plate, the total weight of the breastplate did not exceed  $4\frac{1}{2}$  lbs.

The *Temps* makes its reservations on the employment of these cuirasses as portable breastplates for soldiers who have already so much to carry, but admits that it would be as well to study if this new metal, even better than steel, would not be suitable for armour plating, and bullet-proof shields in use in the Navy, and in fortifications, or as cover for light guns.

The Minister of War has decided, on the 4th March of the current year, that the period of the Autumn Manceuvres to be held this year will be from Thursday, the 24th August, to Wednesday, the 20th September.—*Revue du Cercle Militaire*.

A Presidential Decree of the 9th February of the current year orders the formation of a 5th Battalion to each of the five Zouave regiments. These battalions will garrison Paris and Lyons, which contain a large number of reservists of these corps. The provisionally attaching these reservists to Line regiments for their periods of instruction destroyed the *esprit de corps*, the chief factor of these African troops. In future, the battalions of Zouaves stationed in France will become the centres of instruction and of mobilisation. The same decree ordains that in future the number of battalions composing the four regiments of Turcos will be fixed in accordance with the credits granted, and the recruiting resources. It is in the execution of this last decree that the first three regiments of Turcos have been organised as six battalions each instead of four.

M. de Freycinet has caused the assembly of a Board at the War Office, to find out the cause of the poisoning symptoms which are produced in the troops after the issue of preserved meats, and to propose proper means to prevent their recurrence. This Board consists of 12 members, of which 2 are superior officers, 1 commissary, military and civil doctors, and professors from the Academy of Science. We may observe, that when interpellated in Parliament regarding these accidents, the Minister of War declared that these preserved meats were entirely manufactured in France from home-grown cattle.—*Bulletin de la Presse et de la Bibliographie Militaires.*

GERMANY.—The most important event in the German military year has been, without doubt, the adoption of a new field gun, Model 1896, which has had as consequences, on one side, the projected introduction, in the field artillery, of a gun with plunging fire, viz., the Howitzer, and, on the other side, the complete re-organisation of this arm, provided for in the Military Law actually submitted to the Reichstag. Amongst the changes concerning the General Staff we may mention the creation of an Inspector-General of Cavalry at Berlin, and that of two new Inspectors of Cavalry, thus bringing up the number of these last to four, who have their headquarters respectively at Königsberg, Stettin, Münster, and Sarrebrück; the fusion of the lateral cadre, *Neben-Etat*, with the principal cadre, *Haupt-Etat*; the formation of a historic section of the War Department, giving employment to two retired officers; the prescription by virtue of which a staff journey will be executed annually by each army corps; the suppression of the remount corps of the War Department, and the substitution of an inspection of remounts; and, finally, the formation of a general directorate of *matériel* under the name of "Feldzeugmeisterei." In the infantry there is nothing very important to report, except the decision giving six bicycles to each battalion instead of two. Shooting at the target at a distance of 100 metres has been done away with, and they begin now at 150 metres. The firing conditions at fixed targets, introduced in 1897 as a tentative measure, have now been definitely put in force.

In the cavalry a detachment of road orderlies (Saxon Corps) has been formed.

The effective of the *personnel* employed at the arsenals and the pyrotechnic establishments has been increased.

In order that officers may acquire the necessary knowledge of ballooning in the field, it has been decided that in future 10 officers of all arms shall in future be attached for one year to a school for ballooning.

Special mention should be made of the decision of the 22nd March, 1898, by which 10 infantry lieutenants have been attached to pioneer battalions, and 10 lieutenants of pioneers to infantry regiments. These officers remain with their new corps when they are promoted to the rank of captain, and fulfil all the duties of commanders of companies, and only return later to their original corps. The German military authorities think that, given the exigencies of war, infantry officers, on one side should be thoroughly acquainted with pioneers' duties on the battle-field; and that pioneer officers, on their side, should be familiar with infantry tactics, their special troops being liable to be eventually called upon to fight as infantry. Officers of all arms have been told off to small-arms manufactories to follow a course for repairing rifles. This course, which lasts for twenty-six days, takes place at the manufactories of Spandau, Erfurt, and Dantzic, and has been followed by 168 lieutenants.

The courses at the Technical Superior School have been followed by 32 lieutenants of all arms in accordance with the regulations of 1898. The inferior course, organised as a tentative measure in 1896-97 at the United School for Artillery and Engineers, for a maximum of 30 lieutenants of field artillery, has become definite since 1st April, 1898. The staff of this school has been increased by 2 captains of field artillery as professors.



The superior course, which lasts nine months, in which 20 lieutenants take part, has also been re-opened, as a tentative measure, since the 1st October last.

A course for superior officers has been introduced at the Infantry Musketry School.

The number of the officers for admission to the Academy at Berlin has been increased.

The pecuniary position of officers and of military doctors has been notably improved. Lieutenants alone do not benefit by this measure, under the pretext that it is necessary for them to be proved, in order to be certain that they have really chosen their proper vocation. As a matter of fact, the German Government wishes, in acting thus, to prevent the introduction into the corps of officers of too great a number of young men without fortune.

The soldiers too have not been forgotten, and the necessary allowances to provide them with a third meal—a hot evening repast—was also voted in 1898.

The following must also be noted, viz.:—Changes in the regulations for sanitary service in the field and in peace-time; the prescripts regulating the distribution, the dress, and the equipment of the *personnel* of the Voluntary Sanitary Service; the law on payment in kind for troops in peace-time, a law which considerably lightens the cost to the population; and, finally, the new Military Code of Criminal Procedure.

Camps of instruction were not forgotten in 1898, and the total funds expended on them amounted to 6,699,000 marks.

The number of reservists (Landwehr) called out in 1898 were as follows, viz.:—Infantry 144,500, riflemen 3,900, field artillery 12,000, foot artillery 6,000, pioneers 3,600 (for all the arms mentioned above the proportion of men called out to the Landwehr is  $\frac{1}{3}$ ), railway troops 1,800, balloon section 190, military train 6,691; in all, 178,000 men.

The publication of the new Military Law has been the crowning of the German military year.—*Revue du Cercle Militaire*.

ITALY.—In the month of January last, the Minister of War asked that the Chamber would give him 59,597,000 lire, from the Extraordinary War Budget, to satisfy the necessities for the National Defence. According to the scheme of the Minister of War, a sum of 14,560,000 lire were to be inscribed on the 1899-1900 Budget, and the rest 45,037,000 lire were to be divided amongst the three following expenditures, the expenses of the Minister of War (Ordinary and Extraordinary Budget) should remain fixed at 239 millions:—

1.—To authorise for the expenditure of 1899-1900 a total expense of 14,560,000 lire, thus divided:—

|   | Lire.     |
|---|-----------|
| Manufacture of small-bore rifle ... ..              | 4,300,000 |
| Topographical map of Italy ... ..                   | 110,000   |
| Victualling on mobilisation ... ..                  | 500,000   |
| Manufacture of heavy artillery for coast defence... | 1,650,000 |
| Strategical road and railways ... ..                | 300,000   |
| Barrier forts ... ..                                | 1,000,000 |
| Armament of fortified places ... ..                 | 1,500,000 |
| New material for field artillery ... ..             | 3,000,000 |
| Military establishments .. ..                       | 1,600,000 |
| Barracks for troops ... ..                          | 600,000   |

Total ... .. 14,560,000

2.—To authorise, from the present time, a supplementary expenditure of 15,500,000 lire for the transformation of the field and mountain artillery. Of this sum, 3,000,000 lire are already included in 1899-1900 budget, and the remainder 12,500,000 lire will be spread over three following expenditures.

3.—To suspend all decision on the other credits demanded, viz. :—29,597,000 lire, the Minister having to examine afresh his first propositions and to modify the expenditure, in such a manner as to accelerate certain most urgent works, and to keep back others which may be delayed without grave inconvenience.

The Commission demands more especially that the manufacture of the new rifle should be moderated, because the sum asked for suffices to completely arm the Permanent Army and Mobile Militia. The saving realised on this account could be employed for the transformation of the field and mountain artillery. This transformation is, indeed, extremely urgent; the *matériel* actually in use dates back for more than twenty years, and no longer answers the requirements of real war. The Commission begs the Minister to shorten as much as possible the delay of three years, which he judges necessary to make this transformation an accomplished fact. Finally, the Minister for War, should, according to the demand of the Commission, sell, whenever the occasion arises, several hundred thousands of the old model rifles, as they become useless by the adoption of the new armament. The money thus gained could be employed as far as possible to accelerate the transformation of the artillery.

During a fortnight the mountain batteries executed winter manoeuvre marches in the high valleys that they would have to defend. Colonel Allason, who commands the Regiment of Mountain Artillery, personally directed the expeditions and manoeuvres, which had for their theatre the valleys of Aosta, Clusona, and Doria Riparia. Not a single accident marred these manoeuvres, although the country was completely covered with snow, and although, more than once, a squall surprised the batteries in the midst of their expeditions. The mountain artillery traversed some passages that are really dangerous at this season; for example, the passage of Blégier (7,475 feet high), etc. All these manoeuvres were executed with the regulation service freight; the guns, the *matériel*, and the ammunition were complete in every detail. A party of the gun detachments, supplied with sappers' instruments, cut trenches in the snow to allow the mules to pass, and in dangerous places the mules were supported by ropes, whilst the *matériel* was carried on the men's backs. The results obtained are the more remarkable as the recruits of the last class, having barely two months' service, took part in the manoeuvres. One must, however, remember that the mountain troops of the Italian Army are recruited entirely from the mountainous districts, and in consequence young soldiers are accustomed to all mountain difficulties before they are called to the colours.—*La France Militaire*.

A Ministerial Circular, dated 21st January, 1899, directs that, on the 15th of the following February, a course for the military working of railway stations will commence, under the direction of the Chief of the Staff (Transport Department). The 85 officers selected for this course are subaltern officers of the Infantry and Cavalry; 41 are on the active list, the 44 others in the auxiliary forces, or officers in excess of establishment. They are divided into three groups, having as centres Turin, Bologna, and Rome. A table attached to the circular shows the railway stations to which these officers belong and the troops which should supply them, in each of these groups. The course, which last two months, includes a period of 15 days given at the headquarters of the group, and a period of practical instruction given at the railway stations to which the officers are attached.—*Revue Militaire de l'Étranger*.

RUSSIA.—The *Deutsche Armee und Marine Zeitung* gives an account of the mobilisation of the Russian Army. The distribution of the Russian Army in war-time is essentially connected with its breaking up, in peace-time, which latter affects the 24 army corps containing 52 infantry divisions, 836 battalions, 591 squadrons, 548 batteries, 54 battalions of foot artillery, 34 battalions of pioneers and railway

troops, and, in addition, 2 corps of cavalry, which include 23 cavalry divisions and 2 brigades of from 7 to 8 half battalions of pioneers and railway troops. The formation of the armies for operations and of the reserve armies is already shown, in a general way, by the geographical position of the military districts, and the proportion of commands. The reserve divisions, which are stationed in the western portion of the Empire, would probably be attached to the field army corps as a third division, or would form, as the case may be, mobile independent corps.

#### INFANTRY.

For this arm one may consider the following as available in Europe :—

*a. Field Infantry* :—193 regiments of infantry, 24 rifle regiments, 26 rifle battalions, making a total effective of 17,700 officers and 936,000 men.

*b. Reserve Infantry* :—267 battalions with a total effective strength of 10,300 officers and 624,000 men.

*c. Fortress Infantry* :—150 battalions with a strength of 4,300 officers and 160,000 men.

*d. Infantry Reliefs* :—201 dépôt battalions.

#### CAVALRY.

The following are stationed in Europe and in the Caucasus :—1,137 squadrons or sotnias with an effective strength of 5,100 officers and 190,000 men.

#### ARTILLERY.

*Field Artillery* :—368 batteries of 8 guns with an effective strength of 2,600 officers and 9,000 men.

*Reserve Artillery* :—110 batteries with an effective strength of 800 officers and 26,000 men.

*Horse Artillery* :—About 30 batteries of 6 guns.

*Garrison and Siege Artillery* :—54 battalions, 11 companies, and 3 siege parks.

Finally, 1,000 officers and 50,000 men belonging to the pioneers are attached to the field troops and to the reserves.

#### GENERAL EFFECTIVE STRENGTH OF THE RUSSIAN FORCES.

One may reckon that the Russian forces include about :—

|   | Officers. | Men.      |
|---|-----------|-----------|
| <i>Field troops</i> ... ..                    | 25,000    | 1,200,000 |
| <i>Reserve troops</i> ... ..                  | 16,000    | 880,000   |
| <i>Fortress troops</i> ... ..                 | 4,000     | 260,000   |
| <i>Dépôt troops</i> ... ..                    | 6,000     | 310,000   |
| <i>Territorial troops (Reichswehr)</i> ... .. | 10,500    | 750,000   |
| <i>The European Custom Houses</i> ... ..      | 800       | 29,000    |

Counting the non-combatants, the war strength of the Russian Army, as regards a European war, may be estimated, without exaggeration at four million men.

#### WAR FOOTING OF TACTICAL UNITS.

*An infantry regiment* on a war footing consists of 4 battalions, 79 officers (of whom 7 are employed), 3,970 men, including 110 non-combatants.

*A battalion* consists of 16 to 18 officers, and 960 men.

*Fortress regiments* have 5 battalions.

*Rifle regiments* have 2 battalions.

*A cavalry regiment* is composed of 6 squadrons with 36 officers (of whom 5 are employed), 948 men, including 89 non-combatants, 940 horses.

*The squadron*, or sotnia, of from 4 to 6 officers and 150 troopers.

*The heavy battery*, with 8 guns, includes 6 officers, 260 men, counting 23 non-combatants, and 186 horses.

*A horse battery*, with 6 guns, includes 5 officers, 209 men, and 226 horses.

The total forces stationed on the Austro-German frontier, and distributed amongst the three arms at Wilna, Varsovie, and Kiev, are:—27 infantry divisions, 15 cavalry divisions, 4 brigades of riflemen, 3 independent cavalry brigades.

The distribution will no doubt undergo several modifications and changes.

Following the re-organisation of the Reserve and Dépôt Artillery, prescribed by Order No. 112 of 1898, the stations occupied by the new units are as follows:—

*a. Reserve Artillery—*

1st Brigade (2 groups of 3 batteries) at Kreslavka, in the district of Vitebsk.

2nd Brigade (1 group of 3 batteries and 1 group of 2 batteries) at Serponkhov, in the Moscow District.

3rd Brigade (2 groups of 3 batteries) at Smolensk.

4th Brigade (2 groups of 3 batteries) at Kursk.

5th Brigade (1 group of 3 batteries and 1 group of 2 batteries) at Vosnensk, in the Kherson District.

6th Brigade (1 group of 3 batteries and 1 group of 2 batteries) at Saratov.

The Caucasian Brigade (3 groups of 2 batteries and 1 mountain battery) at Vladikavkaz.

The Reserve Cadre Battery of the 48th Artillery Brigade at Radim, in the Siedletz District.

*b. Dépôt Artillery—*

1st Brigade (of 3 batteries plus the horse artillery dépôt battery) at Nijni-Novgorod.

2nd Brigade (of 3 batteries) at Tagaurog.

3rd Brigade (of 3 batteries) at Samara.

1st Dépôt Field Battery at Bobrinsk.

2nd Dépôt Field Battery at Kiev.

3rd Dépôt Field Battery at Dvinsk.

Caucasian Dépôt Battery at Vladikavkaz.

The station of the Guards Dépôt Field Battery is not yet known.

A Ukase of the 18th November, 1898, ordered the formation of a military dove-cot at the fortified station of Libau by the 1st January, 1899. This dove-cot contains 500 pigeons. The number of military dove-cots, which was six, has therefore now been increased to seven, and are established at Brest-Litovsk, Novo-Gueorguievsk, Varsovie, Ivangorod, Louninets, Sebastopol, and Libau.—*Revue Militaire de l'Étranger.*

At the manœuvres just ended for the troops at the camp of Novo-Gueorguievsk (in the Plock District), by order of the commandant of the fortress, carrier-pigeons were used to unite the manœuvring ground with the citadel and with the staff of the manœuvres. The pigeons were given to cavalry patrols, 5 to 7 pigeons to each patrol. They were carried by a trooper in an ordinary cage attached to the shoulder by a cord. As the pigeons were released, they were replaced by other pigeons taken from a special reserve, placed at a point in the line of outposts. The day before the operations the troopers took the pigeons from the dove-cot and received detailed instructions on the care of them, and on the manner of attaching despatches to them. They were also given food for them, and printed paper for the despatches. The theatre of the manœuvres, situated outside their training ground, was unknown to the pigeons. Frightened by the reports of the firearms, they circled in mounting, and then went straight towards the dove-cot, or else to the citadel by the Naray. The despatches thus received were sent to their destination by telephone, or by means of cyclists. They were rolled round the pigeon's leg, and kept in their place by a gutta-percha ring. For short distances this gave excellent results, and the flights were rapidly made.

For distances of 25 to 30 kilometres the pigeons took from 18 to 23 minutes. Thus the chief of the staff knew, in from 20 to 25 minutes, movements undertaken by the enemy, which took place a day's march off, and could combine his own movements in consequence. A patrol having managed to get behind the enemy, and following him closely, was able to keep the staff informed of all his movements. At the same time the wooden cage, although covered with hay, worried the pigeons greatly, after having been carried 40 to 50 kilometres on the troopers backs. Although they had only a short flight to make of from 25 to 30 kilometres, they arrived at their destination extremely tired. Out of the 60 pigeons which were taken, 37 carried their despatches without delay; 2 were delayed for 2 hours, and 1 only came in in the evening, completely done up. The 20 others were left without despatches at the end of the manoeuvres.—*Revue Militaire Suisse*.

According to a district order at Vilna, the cavalry corps quartered there had, last year, the following number of drills in swimming exercises.

2nd Cavalry Division.—The 4th and 6th Dragoons, 4 drills; the 5th Dragoons, 3 drills; the 2nd Cossacks of the Don, 5 drills.

3rd Cavalry Division.—The 7th, 8th, and 9th Dragoons, and 3rd Cossacks of the Don, 8 drills.

1st Brigade of Independent Cavalry.—The 49th Dragoons, 7 drills; the 50th Dragoons, 6 drills.

In addition, in the 3rd Cavalry Division, and in the 1st Independent Brigade, advantage was taken of bathing establishments to teach swimming to individuals. In these two units the exercises were conducted systematically, in accordance with the district instructions and ended with a manoeuvre according to a tactical scheme. The 3rd Division received the order to cross the Niemen by swimming at Kovno, a place where the width of the river exceeds 270 yards. The passage of the river was executed in 4 hours in bad weather (the duration of the crossing was 33 minutes by the 7th Dragoons; 1 hour and 15 minutes by the 8th; 35 minutes by the 9th, and 29 minutes by the 3rd Cossacks of the Don). Experiments were besides, made with rafts, with tarpaulin boats, and the transport of artillery on beam rafts.

The commander of the 3rd Cavalry Division reports that these regiments are so well trained to cross rivers by swimming that they do it when the necessity arises apart from manoeuvres. Thus the sotnias of the 3rd Cossacks, who were making a foraging expedition near the Niemen at Vilki, in the meadows which are on the opposite bank of the river, got there by swimming across the river without any difficulty.

The 1st Independent Brigade performed some exercises on the Beresina, and sent on in advance of them some mounted sappers to prepare means for crossing. At the conclusion of the instruction it was found that, in the 50th Dragoons, 766 men out of 952 knew how to swim, and in the 49th Dragoons about 130 men in each squadron were able to cross the river.

In the 2nd Cavalry Division no united exercises took place, because they were assembled in camp at Souvalki, far from the Niemen. The commander of this division reported that the 6th Dragoons and 2nd Cossacks had made great progress compared with last year; but he observes, with great regret, that the officers of these two regiments take no part in the swimming drills; he orders the officers to take part in those of the following year.

In war-time, when cavalry precedes armies, when independent bodies of cavalry will have to act, and even in reconnoitring services executed by the smallest fractions, occasions will very probably arise when entire units have to swim across large rivers, because the enemy will have destroyed other means of transit. That cavalry will be most certain of success whom no obstacle can stop.—*Le France Militaire*.



## NAVAL AND MILITARY CALENDAR.

MARCH, 1899.

- 3rd (F.) H.M.S. "Orlando" left Portsmouth for China.  
 4th (Sat.) H.M.S. "Aurora" left Plymouth for China.  
 " " Naval Powder Magazine at Lagouban, near Toulon, destroyed by explosion; cause unknown. Fifty-four persons killed and over one hundred injured.  
 7th (Tu.) 1st Bn. Loyal North Lancashire Regiment arrived at Cape Town from India on the "Avoca."  
 8th (W.) 2nd Bn. King's Royal Rifles left Cape Town for India on the "Avoca."  
 " " H.M.S. "Phœbe" arrived at Plymouth from West Coast of Africa.  
 10th (F.) 1st Bn. Coldstream Guards left England for Gibraltar on the "Nubia."  
 11th (Sat.) Launch of first-class battle-ship "Implacable" at Devonport.  
 " " Floating out of first-class battle-ship "Glory" at Messrs. Laird's, Birkenhead.  
 15th (W.) 1st Bn. Coldstream Guards arrived at Gibraltar from England on the "Nubia."  
 " " Launch of torpedo-boat destroyer "Shiranui" from Messrs. Thornycroft's, for Japanese Government.  
 16th (Th.) 1st Bn. Yorkshire Regiment left Gibraltar for England on the "Nubia."  
 " " H.M.S. "Terrible" arrived at Portsmouth with relieved crews from Mediterranean.  
 " " H.M.S. "Comus" left Portsmouth for North America and West Indies.  
 18th (Sat.) H.M.S. "Talbot" arrived at Spithead from New York with the remains of the late Lord Herschell.  
 " " H.M.S. "Pegasus" left Plymouth for South-East Coast of America.  
 20th (M.) 1st Bn. Yorkshire Regiment arrived at Southampton from Gibraltar on the "Nubia."  
 " " H.M.S. "Edgar" left Portsmouth for Malta with new crew for "Royal Oak."  
 21st (Tu.) H.M.S. "Phœbe" paid off at Devonport.  
 28th (Tu.) H.M.S. "Warspite" commissioned at Chatham for Pacific.  
 29th (W.) The New South Wales Lancers arrived at Durban on their way to Aldershot.  
 " " Launch of H.M.S. "Britomart" from Messrs. Potter's Yard at Liverpool.

## FOREIGN PERIODICALS.

### NAVAL.

ARGENTINE REPUBLIC.—*Boletín del Centro Naval*. Buenos Aires: February, 1899.—"Signalling at Sea." "Practical Naval Architecture." "The New Cruiser 'Ministro Zenteno.'" "The Use of Electricity in the Navy." "Automatic Laying of Heavy Guns." "The Lesson of the American-Spanish War as regards the Machinery of Ships-of-war." "The Trans-Atlantic Mail Steamer 'Oceanic.'" "Telegraph Lines on the South Coast."

AUSTRIA-HUNGARY.—*Mittheilungen aus dem Gebiete des Seewesens*. No. 4. Pola: April, 1899.—"The Development of the Imperial Navy during the last Fifty Years" (*continued*). "Reconnaissance Service at Sea." "Naval Notes." "The Russian Ice-breaker 'Ermack.'" "

BRAZIL.—*Revista Marítima Brasileira*. Rio de Janeiro: February, 1899.—“The Forcing of the Humayta, 19th February, 1863.” “Amalgamation of the Naval and Engineering Schools.” “On Submarine Boats” (*continued*). “Treatise on Naval Tactics” (*continued*). “International Rights in Japan” (*continued*). “Naval Notes.”

FRANCE.—*Revue Maritime*. Paris: February, 1899.—“Reform of the Accountant Department of the Navy” (*concluded*). “A Study of the Medical Service on board ship in view of battle.” “The Spanish-American War” (*concluded*). “The Imperial German Navy.” “Myabara Multitubular Boilers.” “Semaphores as a Means of Transmitting Information.” “The Micro-organism of the Sea.” “The Mercantile Marine.”

*Le Yacht*. Paris: 4th March, 1899.—“The Goubet No. 1 and the Official Trials at Cherbourg.” “Yachting Notes.” “Vessels of Small Tonnage in Bad Weather.” “The Question of the Measurement of Yachts.” “The Next Congress of Nautical Societies.” 11th March.—“The Development of the German Navy.” “Yachting Notes.” “The Toulon Catastrophe.” “The Defender of the American Cup.” 18th March.—“Mr. Goschen's Speech and the English Naval Estimates, 1899.” “Yachting Notes.” “Ships of Small Tonnage in Bad Weather” (*continued*). “The Austro-Hungarian Navy” (*continued*). “The Next Congress of Nautical Societies” (*continued*). 25th March.—“The Navy and Coast Defence.” “Yachting Notes.” “Ships of Small Tonnage in Bad Weather” (*continued*). “Across the Atlantic in the ‘Kaiser Wilhelm der Grosse.’”

*Le Moniteur de la Flotte*. Paris: 4th March, 1899.—“Fishing Steamers.” “The Funeral of M. Faure.” “The French Navy League.” “The Navy in Parliament.” “Colonial Notes.” 11th March.—“The Navy and the Colonies.” “The Navy in Parliament.” “The Toulon Catastrophe.” “Colonial Notes.” 18th March.—“The Capture of Bonifacio.” “The Navy in Parliament.” “The English Naval Estimates.” “The Toulon Catastrophe.” “Colonial Notes.” 25th March.—“The Action of the Navy League.” “New English Construction.” “Discussion in the Chamber of the French Naval Estimates.”

*La Marine Française*. Paris: March, 1899.—Has not yet been received.

GERMANY.—*Marine Rundschau*. Berlin: April, 1899.—“The Youngest Lieutenant in the German Navy, H.R.H. Prince Waldemar of Prussia, ætat. 10” (with portrait). “Acetyline and its Practical Value for Lighting Purposes.” “Captain Mahan's Letters to the *Times*” (translated). “On Ships' Boats with Electric-Motor Engines.” “Jane's Naval War Game.” “Statistical Health Report on the German Navy from April 1895 to March 1897.” “Surveying in Kauchau.” “Turkish Sailing Directions for the Mediterranean in the 16th Century.” “Something about Armour Plates.” “The Work of the Navy in the Suppression of the Arab Rising in East Africa, 1888-1890” (*continued*). “Some Chapters on the Theory of Modern Ships' Engines.”

ITALY.—*Rivista Marittima*. Rome: March, 1899.—“The Necessary Fleet, its Scope and Requirements.” “The Navy of the ‘Divina Commedia.’” “Direct Compensation of the Magnaghi Compass on board ship.” “Giovanni Bausan.” “On the Coast and Coast Country.” Letters to the Director:—“The Ships sold to the Argentine Republic and Spain.” “In Defence of Torpedo-Boats.” “Naval Notes.” “The Mercantile Marine.”

PORTUGAL.—*Revista Portuguesa, Colonial e Marítima*. Lisbon: 20th March, 1899.—Has not yet been received.

SPAIN.—*Revista General de Marina*. Madrid: March 1899.—“Cruiser Tactics” (*continued*). “A Few Words on the ‘Latimer-Clark’ Torpedo.” “The

Arsenal of Port Mahon" (*continued*). "Some Studies on the Nicaragua Canal." "Organisation of the Archives of the Captain-General of Cadiz" (*continued*). "The Dominion of the Sea." "The Misfortunes of Cervera." "Spanish Naval Power." "French Naval Staff College."

### MILITARY.

AUSTRIA-HUNGARY.—*Militär-Zeitung*. Vienna: 5th March, 1899.—"Military Cyclists on Reconnoitring Duty." "Commissary-General Franz Edler von Cançig." "Our System for the Management of Military Dress." 13th March. "The Military Language." "Radetzky." "Horsebreeding in France." 21st March.—"Austria-Hungary in China?" "The next May Promotions." "Tobacco Duty." 29th March.—"The Pay Question." "The Changes in the Army."

*Mittheilungen über Gegenstände des Artillerie- und Genie-Wesens*. Vienna: February and March, 1899.—"On the Theory of Artillery Hydraulic Brakes." "An Apparatus for Determining the Law of Probabilities in the Flight of Projectiles." "Fortresses and Fortress Roads."

*Organ der Militär-wissenschaftlichen Vereine*. Vienna: March, 1899.—Has not yet been received.

BELGIUM.—*Bulletin de la Presse et de la Bibliographie Militaires*. Brussels: 15th March, 1899.—"English and Russians in Central Asia" (*continued*). "Study on Infantry Fire" (*continued*). "Second Part—Control and Management of Infantry Fire." "The Necessity of Training Troops with a view to Future Wars." 31st March.—"Germany's Defensive System" (with map). "Study on Infantry Fire" (*continued*).

FRANCE.—*Revue du Cercle Militaire*. Paris: 4th March, 1899.—"On the Command, and on the Criticism of Manœuvres." "The English Manœuvres at Salisbury in 1898" (with map). "Quick-firing Artillery in Russia." 11th March.—"Preparation of the Section for its rôle of Combined Fire Action." "The English Manœuvres at Salisbury in 1898" (*concluded*). "Medical Statistics of the French Army for the Year 1896." "The Naval Budget." 18th March.—"War Game in Corps." "A Garrison Lecture—The Franco-Italian Alps." "Foreign Tactics—Germany" (with map and sketch). 25th March.—"Competition for Admission to the Higher School for War in 1899" (with map). "A Garrison Lecture—The Franco-Italian Alps" (*continued*). "Foreign Tactics—Germany—Work on a Map" (*continued*). "Subjects for discussion."

*Revue du Génie Militaire*. Paris: March, 1899.—"Colonel Goullet's 'Clisimetre à Collimateur' (levelling instrument)." "Analysis of and Extracts from Vauban's Correspondence" (*continued*). "New Defensive Works at Gibraltar." "On the Resistance and Elasticity of Portland Cement." "Employment of Explosives in Field Works by the Austro-Hungarian Army."

*Revue de Cavalerie*. Paris: March, 1899.—"What a Regiment of Cavalry should be." "Tactical Question given at the Competition for Admission to the Higher School for War in 1899" (with a map). "Manœuvres and War." "A Hussar of Eighty Years." "Notes on Modifications for the Regulation of the 31st May, 1882, on Cavalry Drill." "The Campaign of 1809 in Germany and Austria." "A Forced March."

*Le Spectateur Militaire*. Paris: 1st March, 1899.—"Superior Military Education." "Recollections of an Infantry Marine Officer" (*continued*). "Field Service in the Colonies" (two maps) (*continued*). "Historical Essay on the Russian Army." "Evolutions of a Cavalry Brigade, and Lessons to be Learnt from Them." 15th March.—"Grand Manœuvres." "Superior Military Education" (*concluded*). "Recollections of an Infantry Marine Officer" (*continued*). "Field Service in the Colonies" (two maps) (*continued*). "Historical Essay on the Russian Army" (*continued*).

*Revue d'Artillerie.* Paris: March, 1899.—"Tactical Study by Map." "Mobility of Artillery *Matériel* during the Wars of the Revolution and of the Empire." "Essay on the Manner of Preparing the Cadres for Artillery Reconnaissance" (concluded). "Study on Aerial Navigation." "*Matériel* of Austrian Garrison Artillery" (concluded).

*Journal des Sciences Militaires.* Paris: March, 1899.—"The Eve of Iéna" (concluded). "Distribution of Troops and Field Service." "Napoleonic Maxims." "The Great Frederick" (continued). "Scheme for the Regulation of Infantry Manœuvres" (concluded). "The Grenoble Militia in Savoy and Dauphiné." "Note on the Instructions and Regulations for Manœuvre of Field Artillery."

*Revue du Service de l'Intendance Militaire.* Paris: March, 1899.—Has not yet been received.

*Revue Militaire de l'Etranger.* Paris: March, 1899.—"Disembarkation Plans for the Danish Islands—Campaign of 1864." "Observations on the Russian Grand Manœuvres of 1898." "German Railways in South-West Africa."

GERMANY. — *Militär-Wochenblatt.* Berlin: 1st March, 1899. — "Military Society in Berlin." "The Standards of the Black Hussars." "The Newly-established Prussian Territorial War Society." 4th March. — "On the 150th Anniversary of the Raising of Graf Roon's Fusilier Regiment (West Prussian) No. 33." "The Fighting Round Candia from 1667 to 1669." "Hesse-Cassel Troops, 1683 to 1806." "Gymnastic Instruction for Mounted Troops." 8th March. — "Military Society in Berlin." "Riding Instruction, Riding School Horses, and Riding Masters." "Military Coalition against Social Democracy." "The Army and Navy Establishment of Sweden for the year 1899." 11th March. — "Von Beyer's Division in the Maine Campaign of 1866." "Riding Instruction, Riding School Horses, and Riding Masters" (continued). 15th March. — "Military Society in Berlin." "Riding Instruction, Riding School Horses, and Riding Masters" (continued). "Sanitary Report of the Royal Bavarian Army from 1st April, 1894, to the 30th September, 1896." 18th March. — "Military Society in Berlin." "Service Jubilee, 1899." "Riding Instruction, Riding School Horses, and Riding Masters" (continued). "Sanitary Report of the Royal Bavarian Army from 1st April, 1894, to 30th September, 1896" (concluded). 22nd March. — "Military Society in Berlin." "To the 22nd March, 1899." 23rd March. — "Military Supervision of Explosives in France." "The Spanish Forces after the War with the United States of America." 25th March. — "Riding Instruction, Riding School Horses, and Riding Masters" (continued). "Attack and Defence." "Camp and Battle." 28th March. — "Riding Instruction, Riding School Horses, and Riding Masters" (continued).

*Deutsche Heeres-Zeitung.* Berlin: 1st March, 1899. — "Launching of War-ships in the Year 1898" (continued). "Coast Defence of France." "Should a Reconnoitring Squadron allow itself to be drawn into Fighting or not?" 4th March. — "About the Land Fortifications of Roumania." "Should a Reconnoitring Squadron allow itself to be drawn into Fighting or not?" (concluded). 8th March. — "The Truth about the Battle of Vionville-Mars la Tour on the Left Flank." "Launching of War-ships in the Year 1898" (continued). 11th March. — "The Truth about the Battle of Vionville-Mars la Tour on the Left Flank" (continued). "A Book of Heroes." "Launching of War-ships in the Year 1898" (continued). 15th March. — "The Truth about the Battle of Vionville-Mars la Tour on the Left Flank" (continued). "The Draft of the Bill regarding the Reduction of Service in the French Army." 18th March. — "The Truth about the Battle of Vionville-Mars la Tour on the Left Flank" (continued). "Khartoum and Adowa." 22nd March. — "The Truth about the Battle of Vionville-Mars la Tour on the Left Flank" (concluded). "Khartoum and Adowa" (concluded). "Sharp Contrasts." 25th March. — "Sharp Contrasts" (continued). "Trials in Crossing Rivers in France." 29th March. — "Sharp Contrasts" (continued). "Trials in Crossing Rivers in France" (concluded).

*Jahrbücher für die deutsche Armee und Marine.* Berlin: March, 1899.—“Struggle of the Corps of German Officers against Destruction.” “The Contents of an Intercepted (not published) Memoir of von Moltke in the Spring of 1860, concerning a Contemplated War with Russia.” “The Influence of Modern Field-guns on the Efficiency of Field Artillery.” “The Fight of the 38th Infantry Brigade and of the Left German Flank at the Battle of Vionville-Mars la Tour on the 16th August, 1870.”

*Internationale Revue über die gesamten Armeen und Flotten.* Dresden: March, 1899.—“Two-and-a-half Years' Service.” “The New German Field Gun.” “The Grand French Manœuvres of 1898” (*concluded*). “Universal Service in Russia for the last Twenty-five Years.” “The United States of America.” “The Egyptian Soudan and Abyssinia.” “Napoleon's Operations in February, 1814, against Blücher.” “The Great Dock at the Imperial Dockhead at Kiel.”

*Neue Militärische Blätter.* Berlin: March, 1899.—“Development of the New Field Artillery.” “Contributions Towards the Solution of Aeronautics.” “On the Employment of Cavalry in the Battles and Skirmishes of the Campaign of 1809 in South Germany” (*continued*). “The Regiments of the Royal Prussian Army of the Year 1806” (*continued*). “The Engagement at Messa del Ibor and the Battle at Medellín.” “Contributions to the History of the Austrian Engineers.” “On the Disarmament Question.” “The Swiss Map Department.” “The Non-Commissioned Officer Question in Russia and France.”

ITALY.—*Rivista di Artiglieria e Genio.* Rome: March, 1899.—“Historical Traditions of the Italian Military Engineers.” “Measuring Distances by Means of a Reflecting Prism.” “Employment of Explosive Gelatine for Destroying Metal Caissons.” “Employment of Concentrated Fire by Coast Batteries.” “The Colonisation of Erythrea.” “Ammunition Cases for Mountain Batteries.” “Military Notes.”

*Rivista Militare Italiana.* Rome: 1st March, 1899.—“Tolstoi and War.” “The Local Resources for Provisioning” (*continued*). “Statistical Notes.” “Political-Military Notes.” 16th March.—“Use of Mines in War.” “The Lower Po to the Isongo: A Critical Study of the Second Part of the Campaign of 1866 in Italy, with Special Reference to the Passage of the Po and the March of an Expeditionary Corps from the Lower Po to the Isongo” (*continued*). “Local Resources for Provisioning” (*continued*). “The Grand Manœuvres in Servia.” “Political-Military Notes.”

RUSSIA.—*Voïennyi Sbornik.* March, 1899.—Has not yet been received.

SPAIN.—*Memorial de Ingenieros del Ejército.* Madrid: February, 1899.—“The Practical School of the 4th Regiment of Sappers and Miners in 1897-98.” “Casemates for Ammunition and Stores in Coast Batteries.” “Optical Telegraphy.”

March, 1899.—“Casemates for Ammunition and Stores in Coast Batteries” (*concluded*). “Optical Telegraphy” (*continued*). “Electricity: Problems Relative to the Employment of a number of Primers.”

*Revista Técnica de Infantería y Caballería.* Madrid: 1st March, 1899.—“Promotion and Pay” (*continued*). “Independent Cavalry before Water-courses” (*continued*). “Infantry: Proposed Tactical Instruction for Companies” (*continued*). “The Supply of Ammunition to Infantry in a Modern Battle” (*continued*).

15th March.—“Promotion and Pay” (*continued*). “Study and Tactical Problems.” “The Supply of Ammunition to Infantry in a Modern Battle” (*concluded*). “Conduct of Napoleon in the Field.” “Infantry: Proposed Tactical Instruction for Companies” (*continued*).

SWITZERLAND.—*Revue Militaire Suisse.* Lausanne: March, 1899.—“The 76.5-millimetre Rapid-firing Mountain Gun.” “Motor Cars for Military Transport.” “The Anglo-Egyptian Expedition to the Soudan in 1898” (*concluded*). “Exercise March for Officers.”



Patronized by every Government in Europe.

# SYMONDS & Co.

## Portrait & Marine Photographers,

39, HIGH STREET, PORTSMOUTH.

SPECIALITY—

**PHOTOGRAPHS OF SHIPS OF THE BRITISH & FOREIGN NAVIES,**  
**TORPEDO-BOATS AND TORPEDO-BOAT DESTROYERS,**  
at anchor and at full speed, and instantaneous Yacht Racing subjects,  
the most important Collection in England, size 11 x 9,  
price 2/6 each, unmounted.

*Photographs of all Ships of the Flying Squadron, Channel and Mediterranean Fleets, also Ships on the Australian, African, Pacific, China, and other Stations, unmounted.*

Marine Lantern Slides of Ancient and Modern Ships of War, Torpedo-Boats and Destroyers, Life Incidents and Drill on Board Training and Battle-Ships. Sub-Marine Mining Explosions, Ships in Storms, and Battle Scenes, suitable for Lectures, Entertainments, &c., price 1/6 each; and for finale, fine slide of "God Save the Queen," with Portrait of Her Majesty, price 2/6.

**CATALOGUES POST FREE.**

It's quite a HOME-MADE SOUP!

## EDWARDS'

DESICCATED

## SOUP

Made in 4 VARIETIES: Brown, White,  
Tomato, Gravina.

GRAVINA is particularly suited for enriching gravies, sauces, stews, rissoles, ragouts, minced collops, meat pies, hashes, etc., and indeed almost anything. It has an excellent flavour, and gives substance and piquancy wherever used. It is a perfect gravy in itself, without any addition. Try it, and you will be surprised.

If you cannot get them at your Grocer's, send to  
Fredk. King & Co., Ltd., 3 Camomile Street, London, E.C.,  
8 penny stamps for an 8d. tin of Brown, White or Tomato.  
6 penny stamps for a 6d. tin of Gravina

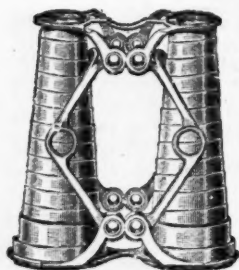


My Dear, **BUY IT!**



# THE "AITCHISON" PATENT POCKET BINOCULAR FIELD GLASS

"The only perfect Rapid Focus Field Glass."



OPEN.



CLOSED FOR POCKET.

**Made entirely of Aluminium.**

Weight only 5 ozs.

**SPLENDID POWER AND DEFINITION.**

No. 1.—Suitable for all purposes ... £3 3s. Od.

No. 2.—Extra power, specially made  
for Military purposes ... £5 5s. Od.

Complete in soft Leather Purse Case.

Hard Leather Sling Case, 5s. extra.

*Carriage paid to any part of the World.*

## AITCHISON'S NEW TELESCOPE.



THE ALUMINIUM "CADET."

£3 3s. Od.

Carriage Paid Great Britain and Ireland. Carriage to other parts of the world, 5s. extra.

Regulation Pattern.

Finest Lenses.

Object Glass  $1\frac{1}{4}$ -inch diameter.

Length open 24 inches. Closed 18 inches.

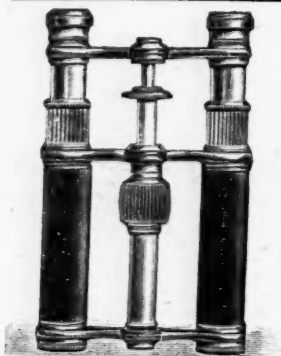
Very powerful. Weighs only 12 ounces.

**The "VICTORIA"**

## Binocular Telescope

is one of the handiest glasses ever produced. It is  
only  $\frac{3}{4}$ -inch thick, case included, when shut up for  
pocket.

**SPLENDID LENSES. VERY HIGH POWER.  
WEIGHT UNDER 7 OUNCES.**



The "Victoria" Binocular Telescope.

Aluminium, £7 10s.

Carriage Paid Great Britain and Ireland.  
Carriage 5/- extra to other parts of the world.

**MAKERS OF FIELD GLASSES AND TELESCOPES OF EVERY DESCRIPTION.**

*Illustrated Price Lists Post Free. Thousands of Glasses in Stock.*

**AITCHISON & CO.,**

428, STRAND, LONDON, W.C.,

Branches at 47, FLEET STREET, 6, POULTRY & 46, FENCHURCH STREET,  
LONDON, E.C.

THE ADVERTISEMENT DEPARTMENT OF THIS JOURNAL IS CONDUCTED IN J. J. KELIHER & Co.'s ADVERTISING  
OFFICES, 33, KING WILLIAM STREET, E.C., AND MARSHALSEA WORKS, BORO' S.E.,  
WHERE ALL COMMUNICATIONS SHOULD BE ADDRESSED.

5

-

s.

s.

a.

-

2

is

or

R.

ON.

ET,

RTISING